S. HRG. 100-594

HEALTH AND PUBLIC SAFETY ISSUES SURROUNDING RADIOACTIVE SPILLS AT WRIGHT-PATTERSON AIR FORCE BASE

JOINT HEARING

BEFORE THE

COMMITTEE ON GOVERNMENTAL AFFAIRS

AND THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES UNITED STATES SENATE

ONE HUNDREDTH CONGRESS

FIRST SESSION

NOVEMBER 21, 1987
DAYTON, OH

Printed for the use of the Committee on Governmental Affairs
and the Committee on Energy and Natural Resources

U.S. GOVERNMENT PRINTING OFFICE

83-464 WASHINGTON : 1988

For sale by the Superintendent of Documents, Congressional Sales Office
U.S. Government Printing Office, Washington, DC 20402

S 311-54
S 401-40

COMMITTEE ON GOVERNMENTAL AFFAIRS

JOHN GLENN, Ohio, *Chairman*

LAWTON CHILES, Florida
SAM NUNN, Georgia
CARL LEVIN, Michigan
JIM SASSER, Tennessee
DAVID PRYOR, Arkansas
GEORGE J. MITCHELL, Maine
JEFF BINGAMAN, New Mexico

WILLIAM V. ROTH, JR., Delaware
TED STEVENS, Alaska
WILLIAM S. COHEN, Maine
WARREN B. RUDMAN, New Hampshire
JOHN HEINZ, Pennsylvania
PAUL S. TRIBLE, JR., Virginia

LEONARD WEISS, *Staff Director*
LORRAINE P. LEWIS, *Counsel*
BRIAN DETTELBACH, *Assistant Counsel*
JO ANNE BARNHART, *Minority Staff Director*
MICHAL SUE PROSSER, *Chief Clerk*

COMMITTEE ON ENERGY AND NATURAL RESOURCES

J. BENNETT JOHNSTON, Louisiana, *Chairman*

DALE BUMPERS, Arkansas
WENDELL H. FORD, Kentucky
HOWARD M. METZENBAUM, Ohio
JOHN MELCHER, Montana
BILL BRADLEY, New Jersey
JEFF BINGAMAN, New Mexico
TIMOTHY E. WIRTH, Colorado
WYCHE FOWLER, JR., Georgia
KENT CONRAD, North Dakota

JAMES A. McCLURE, Idaho
MARK O. HATFIELD, Oregon
LOWELL P. WEICKER, JR., Connecticut
PETE V. DOMENICI, New Mexico
MALCOLM WALLOP, Wyoming
FRANK H. MURKOWSKI, Alaska
DON NICKLES, Oklahoma
CHIC HECHT, Nevada
DANIEL J. EVANS, Washington

DARYL H. OWEN, *Staff Director*
D. MICHAEL HARVEY, *Chief Counsel*
FRANK M. CUSHING, *Staff Director for the Minority*
GARY G. ELLSWORTH, *Chief Counsel for the Minority*

CONTENTS

Opening statements: Page

Senator Glenn 1
Senator Metzenbaum 4
Congressman Hall 5
Congressman DeWine 6

WITNESSES

SATURDAY, NOVEMBER 21, 1988

Hon. Paul Leonard, Lieutenant Governor of the State of Ohio 7

Hugh Thompson, Director, Nuclear Materials Safety and Safeguards, accompanied by A. Bert Davis, Regional Administrator, Region III; Robert Martin, Regional Administrator, Region IV; Ben Hayes, Director, Office of Investigations; and Joseph Lenhard, Assistant Manager for Energy Research and Development, Oak Ridge National Laboratory 9

Brig. Gen. Charles E. Fox, Jr., Vice Commander, Ogden Air Logistics Center, accompanied by Brig. Gen. Rufus DeHart, Director of Professional Affairs and Quality Assurance, Air Force Surgeon General; Col. David Wood, Executive Secretary, Air Force Radioisotope Committee; Lt. Col. John Swanson, Chief of Radiation Oncology and Medical Physics; John Ricci, M.D., Radiation Safety Officer; and Col. Stephen F. Kollar, Air Base Wing Commander 39

William Axelson, Nuclear Regulatory Commission 65

Robert M. Quillin, Radiological Health Program Director, Ohio Department of Health; James R. Williams, Chief of Staff, Ohio Disaster Services, Office of the Adjutant General; Dennis Muchnicki, Chief of the Environmental Enforcement Section, Office of the Attorney General of Ohio representing the Attorney General, Anthony Celebrezze 73

Julia Collier, General Counsel, American Federation of Government Employees, Council 214; and Ronald Crum, Scoutmaster, Boy Scout Troop 250, Canton, OH 81

ALPHABETICAL LIST OF WITNESSES

Axelson, William: Testimony 65

Collier, Julia: Testimony 81

Crum, Ronald: Testimony 81

Davis, A. Bert: Testimony 9

Dehart, Brig. Gen. Rufus:

Testimony 39
Prepared statement 114

Fox, Brig. Gen. Charles E., Jr.:

Testimony 39
Prepared statement 89

Hayes, Ben: Testimony 9

Kollar, Col. Stephen F: Testimony 39

Lenhard, Joseph:

Testimony 9
Prepared statement 85

Leonard, Hon. Paul: Testimony 7

Martin, Roberts: Testimony 9

Muchnicki, E. Dennis:

Testimony 73
Prepared statement 125

Page

Quillin, Robert M.: Testimony 73
Ricci, John, M.D.: Testimony 39
Swanson, Lt. Col. John: Testimony 39
Thompson, Hugh: Testimony 9
Williams, James R.:
Testimony 73
Prepared statement 122
Wood, Col. David: Testimony 39

APPENDIX

Prepared statements of witnesses in order of appearance 85
Health Services Management Inspection Field Memorandum, USAF Medical Center, Wright-Patterson, Wright-Patterson AFB, OH: dates of inspection, September 20, October 1, 1987 131
Letters from:
Richard F. Celeste, Governor, State of Ohio, to Caspar Weinberger, Secretary of Defense, November 19, 1986 134
Caspar Weinberger, Secretary of Defense to Gov. Richard F. Celeste, January 20, 1987 136
Congressman Craig Hosmer to Robert D. O'Neill, Director, Office of Congressional Relations, U.S. Atomic Energy Commission, August 13, 1971 . 137
Harold L. Price, Director of Regulation, AEC, to Congressman Craig Hosmer, September 10, 1971 139
Congressman John M. Ashbrook, to Robert O'Neill, Director, Congressional Relations, U.S. Atomic Energy Commission, September 27, 1971 140
Harold L. Price, Director of Regulation, AEC, to Congressman John M. Ashbrook, October 5, 1971 141
Descriptions of 1970 Atomic Energy Commission [AEC] licensing procedures and description of current NRC licensing procedures 143
Letter from Joe LaGrone, Manager, Oak Ridge Operations, Department of Energy, to Senator Howard M. Metzenbaum, with enclosures, December 28, 1987 144
Report of Region III Confirmatory Survey of Wright-Patterson Air Force Base 169
Statement of Senator John Glenn on the Release of Information Relating to the Americium-241 Leaks at Wright-Patterson, March 15, 1988 176
"A Summary and Analysis of Key Events Relating to the Americium Leaks at Wright-Patterson Air Force Base During Autumn 1986," a study prepared by the majority staff of the Committee on Governmental Affairs, March 1988, with attachments 181

HEALTH AND PUBLIC SAFETY ISSUES SURROUNDING RADIOACTIVE SPILLS AT WRIGHT-PATTERSON AIR FORCE BASE

SATURDAY, NOVEMBER 21, 1987

U.S. SENATE,
COMMITTEE ON GOVERNMENT AFFAIRS
AND THE
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Dayton, OH.

The Committees met pursuant to notice, at 10 a.m., in the Council Chamber, City Hall, Dayton, Ohio, Hon. John Glenn, Chairman, Senate Committee on Governmental Affairs, presiding.

Present: Senator Glenn; Senator Howard Metzenbaum, Member, Senate Committee on Energy and Natural Resources; Congressman Michael DeWine (R-Ohio); and Congressman Tony Hall (D-Ohio).

OPENING STATEMENT OF CHAIRMAN GLENN

Chairman GLENN. The hearing will be in order.

Good morning. Today the Senate Committee on Governmental Affairs, which I chair, in conjunction with the Senate Committee on Energy and Natural Resources, represented by Senator Metzenbaum, is conducting a hearing into reported americium-241 leaks last fall at Wright-Patterson Air Force Base.

Now, this is an official hearing, just as though we were conducting it in Washington. We do field hearings like this on occasion. As far as the record goes and as far as the printing of the record and the information available to all the Members of Congress, it's just the same as if we were conducting this in Washington, so we follow exactly the same procedures here as if we were holding it there.

From what has been unfolding daily in newspaper accounts it is clear that Jules Verne and John LeCarre could not have written a more bizarre tale. Unfortunately, however, we are not dealing in fiction, but in real life.

I am very truly shocked at how these incidents could ever happen in the first place, and even more alarming are public reports of what was done, and in some cases what was not done, to alert the appropriate Federal and State regulatory authorities about the spill. Again, we are not just talking about any substance, but rather americium-241, a radionuclide, which can prove deadly if inhaled into the lungs.

What if this noxious material had been dispersed into the air by a fire? This was a real possibility, since the americium happened to

be stored in a munitions area. Or what if some of the contamination had seeped into the groundwater supply?

One fact is clear: the presence of unauthorized americium on the base meant that for years an accident was waiting to happen. And, lo and behold, one did. In fact, we will be hearing from Dr. Ricci today, a victim of that accident.

It is my hope that today's hearing will help clarify some of the questions raised by this affair. I don't know at this point, frankly, whether we will have to have other hearings on this same subject or not, but there are a number of questions.

For example: How was somebody able to acquire and possess such large quantities of americium-241 in the first place? Can anyone walk off the street into a Department of Energy laboratory and purchase this deadly stuff? What type of permit do they need? How easy are they to get?

What type of coordination exists between the Department of Energy and the Nuclear Regulatory Commission to verify such licenses and their authorized quantities, to see that unauthorized quantities are not purchased?

How and why could these barrels of radioactive waste be transported across a heavily traveled portion of a main Ohio interstate highway? What if there had been an accident or some of this residue had escaped?

How could the Air Force, with no license to accept unsealed quantities of americium-241, acquire and store two barrels of this material, or at least had some of this material in its barrels sometime in the 1970s? Doesn't the Air Force keep records of what is stored on the base? Was it surreptitiously brought in? What is to prevent other things like this from happening in the future? What about evidence from Air Force inspection reports that the low-level storage facility at Wright-Pat had been repeatedly cited for lax inventories and incomplete identification records?

For that matter, what about the most recent inspection, just two months ago, wherein the Air Force found that Wright-Patterson's "radioactive material inventory, storage, and waste management were unsatisfactory"? [1] This is a year after the spills. Maybe they better try another system that works.

When were these leaks dealt with? How were they cleaned up? When and how were personnel exposed to contamination tested and informed of the results? What about members of the community, including the Boy Scouts, who use that area?

What went wrong in the chain of command that was supposed to notify the USAF Radioisotope Committee at Brooks Air Force Base—that's the Air Force administrator of NRC licenses—of the severity of this accident? And what actions were taken by the Radioisotope Committee to exercise its duty in reporting the releases to Region IV of the Nuclear Regulatory Commission in Arlington, Texas, for proper investigation?

Finally, what was the extent of communication and coordination between NRC Region IV, which interacts with the Radioisotope Committee at Brooks Air Force Base, and NRC Region III, which

---

[1] See p. 131.

had conducted the original investigation and is responsible for NRC enforcement in the Midwest.

I don't know if we will be able to get all the answers to these questions here today. But I am sure going to try, and my primary concern is to ensure that never again will Ohioans, or anyone, be exposed to this type of hazard, because sometimes when we run into something like this at home in Ohio, we find out the same thing may be going on at many, many places all over the country.

We found it at Fernald a short time ago. When we got into some of the problems of Fernald about five years ago we thought it was an isolated case, and we wind up with the same thing going on at our whole nuclear fission weapons system all over the country. We want to make sure that some of these same things are not happening at other sites also and others will not be exposed to such a potentially catastrophic situation in the future.

If this hearing shows that tighter controls are needed to provide fail proof safeguards in this area, through legislation or otherwise, so be it. I stand ready to work with Senator Metzenbaum and my other colleagues towards this end, and we have asked our congressional colleagues from this area, Congressman Hall and Congressman DeWine, who are here to join us, and we are happy to have them. I am glad they accepted our invitation on this. I am glad to have them here and their help, because it is happening right here in their home area.

There has been a lot of speculation in the press about attempts to cover up the facts concerning the spill right after it happened. Now, I want to state this morning unequivocally that there is no question that an attempted cover-up occurred. In the course of their inquiry into this matter, the Governmental Affairs Committee staff was told of the existence of a tape recording, a transcript of which has now been reviewed by Senator Metzenbaum and myself.[2]

This tape recording was made of a group conversation concerning the americium spill. A transcript of this conversation reveals that some persons at the Wright-Patterson Air Force Base who understood the seriousness of the spill clearly advocated that persons outside this discussion group not be told of the spill, that attempt be made to decontaminate the building without other people knowing about it and that unauthorized radioactive waste be surreptitiously removed from the base and that the tape recording of their conversation be erased.

These other materials are in the hands of appropriate authorities for whatever action they may wish to take in the future. We will not go into them any further today because of that.[3]

So with that opening remark and before we go ahead, I'd ask Senator Metzenbaum, who is co-chairing this hearing this morning, to make any statements he wants, as well as statements from Congressman Hall and DeWine.

---

[2] See p. 217.

[3] On March 15, 1988, Senator Glenn released a summary and analysis of the key events relating to the americium-241 leaks, which was prepared by the majority staff of the Committee on Governmental Affairs. See p. 176.

OPENING STATEMENT OF SENATOR METZENBAUM

Senator METZENBAUM. Thank you very much, Chairman Glenn. Very happy to work with you in connection with this entire hearing. It's appropriate that your Committee, Governmental Affairs Committee, and my Committee, the Regulation and Conservation Subcommittee of the Energy Committee, have joined together in exploring one of the most bizarre string of troubling incidents and serious accidents that I could ever possibly imagine. I am tempted to describe this entire scenario as a 10-year comedy of errors. The sad part is there is absolutely nothing funny about it. It's not a comedy. Almost everything that could have gone wrong appears to have gone wrong.

You know, it could almost be part of the movie "The Twilight Zone." If Stephen Speilberg made this movie, nobody would believe it. But the fact is, it's a horrifying reality, and it's an embarrassment.

Senator Glenn's Committee and my Committee have a responsibility to the people of this community to lay out the facts, answer the questions. We will release a number of documents that will shed considerable light on this entire series of events, but the transcript to which Senator Glenn has alluded is, perhaps, one of the most incredible documents that I have ever read.

These men sat in a room, they knew the dangers, they knew the mistakes, they were laughing. It was a big joke, and they sat there and talked about a deliberate cover-up. They said, "Be sure you don't get it on TV." "Don't tell your roommate or your girlfriend." These are direct quotes. And, "We have to keep the information out of enemy hands." They didn't describe what the enemy hands are, but I guess the enemy hands, in fact, were the people.

They knew they had committed a dastardly act. They were determined to cover it up. They were not worrying about the dangers that might be caused to others. What a ludicrous situation! They open the barrel at the time the incident occurs and they run to some puddle a mile or two away, wash their hands in the puddle, then run back to an open shower spigot at a Boy Scout Camp. It's so unreal that it's hard to talk about it.

The details of the story are confusing and complex, and the cast of characters runs the gamut from an obscure jeweler to the Secretary of Defense, who gives the Governor of the State of Ohio gobbledegook and downplays the whole incident when the Governor of the State of Ohio indicates his concern about the matter and writes to him. It runs the gamut from members of the Air Force to members of the Boy Scouts

This is what we know so far. Sometime in the late 1970s an Ohio jeweler transported a dangerous material, americium-241, across the State where it was stored in a building on Wright-Patterson Air Force Base. A jeweler is put in possession of a dangerous radioactive material? For what purpose? For some lofty purpose? No. For the purpose of changing the color of the diamonds that he sells.

NRC Regional officials knew of the allegation that americium had been transported to Wright-Patterson, but the NRC did nothing. They failed to investigate. The radioactive material apparently

remained undisturbed until the autumn of 1986 when it was discovered and then spilled. Not once but twice.

A meeting between certain Air Force personnel occurred the day after the first spill. That's the meeting which I mentioned before. It was taped. We have a copy of the transcript. I am now informed that there is another copy of a transcript of that same meeting but that this second has different verbiage. I am informed that there may even be a third transcript of the same meeting.

Neverless, the copy I read plainly shows that some people were more concerned about protecting their positions than about protecting the public. They were determined to keep this spill secret from those with the greatest right to know—the public.

But the blame is not limited to those at the meeting. Other Air Force personnel delayed reporting the spill to the Nuclear Regulatory Commission and even then minimized the seriousness.

The storage building and at least one individual were contaminated. Cleanup costs were estimated to be about $1 million.

Neither the Air Force nor the NRC gave timely notification to the State of Ohio.

The Justice Department is now conducting a criminal investigation.

I agree with Senator Glenn: This is but one instance. How many more instances of this kind exist throughout the nation? In how many other instances are Air Force personnel and the NRC failing to meet their responsibilities?

Every fact at hand raises lingering questions. How in the world does a private citizen acquire so much radioactive material in the first place? "Gentlemen, please send me some radioactive material." Can anybody get it? How could one man turn his home into a toxic superfund site, eventually costing taxpayers hundreds of thousands of dollars to clean up his own home.

Why did the NRC regional office fail to follow up on their leads? Why didn't the Air Force report the spill immediately? Why was the severity of the situation down played? As I previously mentioned, why did Secretary Weinberger, who knew more—knew enough—soft-pedal the incident in a letter to Governor Celeste?

One might claim it is bureaucratic bungling. One also might claim there was a full-blown cover-up.

Why do questions remain today about the safe handling of radioactive materials at Wright-Patterson Air Force Base and other bases as well?

These are some of the questions for which we want answers. Our Committees are not interested in building a criminal case for the Justice Department; we are interested in finding out whether the health and safety of any Ohioans are at risk and to prevent anything like this from happening in the future.

Chairman GLENN. Thank you, Howard. Congressman Tony Hall.

OPENING STATEMENT OF CONGRESSMAN HALL

Mr. HALL. Thank you, Senator, and I want to thank you, Senator Glenn and Senator Metzenbaum, for holding these hearings. Welcome to the Third Congressional District.

I have a statement for the record. I won't read it. I will appreciate if it could be included.

Chairman GLENN. We will put it in in its entirety.

Mr. HALL. My statement and what I am going to say is very short. My concern is chiefly centered around the safety of the residents of Wright-Patterson Air Force Base and the safety of the residents of surrounding communities.

The questions that I am interested in are, number one, how did it happen? How can we prevent it from happening again, and what is being done now to assure that it is not happening?

There are only so many times when one gets a second chance, and we have had our share of environmental scares in the Third Congressional District, minor freight train disasters of toxic waste that have leaked, spills at Wright-Patterson of hazardous chemicals. With each one we have learned and were able to improve upon the situation. I am glad in this particular situation that we have a second chance, and I thank you for the hearing.

I think what might come out from this hearing will establish a pattern and a direction for us to take to improve our situation that certainly needs to be improved upon. Thank you.

[Congressman Hall's prepared statement follows:]

PREPARED STATEMENT OF REPRESENTATIVE TONY P. HALL

I wish to thank my Ohio colleagues Senator Glenn and Senator Metzenbaum for holding this hearing and inviting me to participate.

I am deeply concerned about the series of events leading up to the release into the environment of radioactive Americium-241. I am also troubled by the immediate response of Air Force personnel.

But this is not a time for finger-pointing or determining guilt. That is a matter for the Justice Department, to be decided in a court of law. What is of concern is the future safety of employees of Wright-Patterson Air Force Base and residents of the surrounding community.

Why weren't existing regulations, procedures, and law adequate to prevent this accident from occurring? How should they be changed to insure that it won't happen again? These are the kinds of questions we should be asking today.

Last week I met with Colonel Kollar and other Base officials, and I am satisfied that they are taking all the necessary steps to bring to light information about this unfortunate incident. However the broader picture of the Base's environmental safety record must be examined—not only for its implications here, but nationally as well.

We are fortunate that the radioactive spill which occurred appears to have had no major threat to the public health. But there are only so many times you get a second chance.

In the past, the people of Dayton have had their share of environmental scares—the Miamisburg train disaster, leaking toxic waste sites, and spill of hazardous chemicals. In each case, we were able to learn from our mistakes, and suggest corrections. Once again, we have an opportunity to learn from our mistakes.

The Dayton area must jealously guard its natural resources, including its groundwater, from environmental contamination. I hope that this hearing will be useful in helping our community and the Base continue working together to support our mutual goals.

Chairman GLENN. Thank you, Congressman Hall. Congressman DeWine?

OPENING STATEMENT OF CONGRESSMAN DeWINE

Mr. DEWINE. I would also like to thank Senator Glenn and Senator Metzenbaum for holding the hearings and inviting Congressman Hall and me to participate today. As the Congressman who shares the jurisdiction of Wright-Pat and who has a number of con-

stituents who work at the base, my concern principally is about the future safety of the employees who work at the base and go in every day, both military and civilian. And my concern is that whatever needs to be done has been done, so that this does not happen in the future.

I think these hearings are particularly beneficial, because there remain a lot of questions and a lot of my constituents have written or called with unanswered questions, and I think today's hearings will be helpful in that regard to air some of the questions that we might have.

Even though this has been covered extensively in the press, there still remain questions. So that will be my concern and the focus of my attention today. Thank you very much.

Chairman GLENN. Thank you.

The State of Ohio has been much involved with this. I mentioned the national interest also that we want to look into, but the State here obviously has first claim on an interest when an event like this occurs.

Governor Celeste wrote to the Secretary of Defense about this and was concerned about it. Governor Celeste was unable to be here with us today, but we bring no stranger to Dayton in the form of Lieutenant Governor Paul Leonard, and we are glad to have Paul representing the State of Ohio. Paul?

TESTIMONY OF HON. PAUL LEONARD, LIEUTENANT GOVERNOR OF THE STATE OF OHIO

Lieutenant Governor LEONARD. Thank you very much, Chairman Glenn, Senator Metzenbaum. On behalf of Governor Celeste and our Administration, we would thank you for holding this hearing in Dayton, Ohio, today.

The issue here is not just contamination that results from any one incident. The lack of openness and honesty after it happened are equally disturbing for those of us who work for the State of Ohio.

While the subject of today's inquiry is americium, it is important to consider this incident in the context of the larger problem: the failure of federal facilities in Ohio to operate safely, protect the public and our natural resources from contamination and their unwillingness to work cooperatively with State authorities to correct environmental problems.

Encouraging the U.S. Department of Energy facilities at Fernald and Portsmouth and the U.S. Department of Defense installation at Wright-Patterson to comply with the same environmental standards expected of Ohio businesses and citizens has been a constant struggle. These three facilities have created serious environmental hazards by past mismanagement of hazardous and radioactive materials.

State efforts to bring them into compliance have been met with legal challenges to State authority rather than cooperation. Through aggressive enforcement actions, this Administration and the Ohio Attorney General are demonstrating national leadership in attempting to bring these installations into compliance.

The americium accident that took place at Wright-Patterson in September of 1986 and the events that have occurred since then are particularly disturbing. The Air Force failed to give the State of Ohio prompt, accurate notification of the incident, and, moreover, the seriousness of the accident which the Department of Defense characterized as "negligible" appears to have been misrepresented.

There is no such thing as a negligible release of radiation, especially when there is danger of human contamination and when it occurs at an installation that sits directly over Dayton's aquifer.

On November 12th of 1987, Governor Celeste wrote to Secretary Weinberger requesting information about the americium spill. The Governor's letter requests Wright-Patterson to notify the State concerning future radiological incidents and transportation of radioactive waste, provide information about the transportation and receipt of the americium and report on the efforts to improve the management of radioactive materials at the base.

Another container of americium which Mr. Haynes may have transported to the base appears to be missing. If that is the case, the NRC and Wright-Patterson must investigate.

The State of Ohio is also concerned about the adequacy of the clean-up of the site. Governor Celeste has asked to review the final assessment of the mediation efforts which are now being prepared by Wright-Patterson's contractor.

At the State's request, the United States Department of Energy has agreed to conduct intensive monitoring for lingering contamination. Governor Celeste and I would appreciate your assistance in encouraging the Department of Defense to cooperate in resolving the problem created by this incident and working to prevent future radiological incidents.

In addition, I hope you will continue to work to improve Federal facilities' compliance in environmental protection standards as you have at Department of Energy's Fernald plant.

Let me conclude by adding a personal note. As former mayor of this community, I am surprised, frankly, a bit disappointed in Wright-Patterson Air Force Base. They are a better corporate citizen in this community than recent events have indicated. The base is critical to our defense as a nation, important to the State and the region's economy, but they are not bigger than the law.

All of us who inhabit this planet have a basic responsibility to deliver our environment safe and sound to the next generation. That applies equally to Federal installations. This kind of event should not happen again, but if by some chance it does, the public and the State of Ohio have a right to know in a timely fashion.

We take seriously our responsibility to protect the health, the safety and the welfare of our citizens, and we understand America's commitment to provide common defense. Those goals are not incompatible.

Good neighbors demand a relationship built on trust and open communication. We look forward to an improved relationship between the State of Ohio and Wright-Patterson Air Force Base. One that ultimately benefits all Ohioans.

Chairman GLENN. Thank you.

Senator METZENBAUM. Senator Glenn, I have a copy of the Governor's November 1986 letter to Casper Weinberger. I think we ought to include it in the record at this point.

Chairman GLENN. Include it in the record, that will be fine.[4]

We have several panels this morning. The first will be a panel of representatives of the Nuclear Regulatory Commission and Department of Energy. The second will be a panel representing the Air Force. Third, representing the State of Ohio, and Ohio organizational representatives. Finally, the Boy Scouts and Julia Collier of the American Federation of Government Employees.

We will run through these panels as expeditiously as we can, and I would ask, as we call the names of this first panel, if they would take their place at the witness table, please.

First is Mr. Bert Davis, who is Regional Administrator, Region III. Mr. Robert Martin, Regional Administrator, Region IV. Ben Hayes, Director, Office of Investigations for NRC. Hugh Thompson, Director, Nuclear Materials Safety and Safeguards. Joseph Lenhard, Assistant Manager for Energy Research and Development, Oak Ridge National Laboratory.

Gentlemen, following our procedure as we do in Washington, we want this to be sworn testimony today, and I would ask you all to stand and take the oath, and I will call your names individually for your response to it at the end of the oath.

All right, do you solemnly swear that the testimony you are about to give is the truth, the whole truth and nothing but the truth? Mr. Davis?

Mr. DAVIS. I do.

Chairman GLENN. Mr. Martin?

Mr. MARTIN. I do.

Chairman GLENN. Mr. Hayes?

Mr. HAYES. I do.

Chairman GLENN. Mr. Thompson?

Mr. THOMPSON. I do.

Chairman GLENN. Mr Lenhard?

Mr. LENHARD. I do.

Chairman GLENN. Gentlemen, I understand that Mr. Thompson, I guess, will act as spokesman for the group and control that. So, Mr. Thompson, we are glad to have any statement you wish to make, before we ask you questions.

TESTIMONY OF HUGH THOMPSON, DIRECTOR, NUCLEAR MATERIALS SAFETY AND SAFEGUARDS, ACCOMPANIED BY A. BERT DAVIS, REGIONAL ADMINISTRATOR, REGION III; ROBERT MARTIN, REGIONAL ADMINISTRATOR, REGION IV; BEN HAYES, DIRECTOR, OFFICE OF INVESTIGATIONS; AND JOSEPH LENHARD, ASSISTANT MANAGER FOR ENERGY RESEARCH AND DEVELOPMENT, OAK RIDGE NATIONAL LABORATORY

Mr. THOMPSON. Thank you. Senator Glenn, Senator Metzenbaum, Congressman Hall, Congressman DeWine, and Mr. Leonard: I am Hugh Thompson; I am the Director of the Office of Nuclear Materi-

[4] See p. 134.

als Safety and Safeguards, and I am responsible for NRC's nonreactor licensing and inspection program.

As you know, with me today are Mr. Bert Davis. Administrator of Region III, whose office is in Chicago; Mr. Robert Martin, Administrator of our Region IV office in Arlington, Texas; and Mr. Ben Hayes, Director of our Office of Investigations. The other members of the NRC staff that you requested to be here are here today.

We are pleased for this opportunity to provide information and answer questions concerning how the September 1986 americium contamination incident inside the radioactive waste storage building at Wright-Patterson Air Force Base and related events involving a former NRC licensee, J.C. Haynes occurred, and what is being done by NRC to provide assurance that these actions and incidents do not occur again. However, because certain aspects of this incident are in active review by our Office of Investigation, I would like to turn to Mr. Hayes, who will give us some limitations that we do face today.

Mr. HAYES. Thank you very much. I am Ben Hayes, the Director of Office of Investigations of the NRC. I thought to properly set the stage and lay the foundation, Senator Glenn, that I would discuss very briefly our investigation of Mr. John C. Haynes, which has been concluded.

The Office of Investigations' first interviews concerning Mr. Haynes occurred in February of 1985. We were investigating basically three allegations: One, the making of a material false statement to the NRC; two, unauthorized use of americium-241 in violation of NRC license; and, three, unauthorized possession of an amount of americium-241 exceeding NRC's license.

A summary of the investigation suggests that on February 1985 we notified the FBI of our investigation, basically, because we thought a search warrant and/or arrest warrant may be appropriate. We interviewed Mr. Haynes, we looked at his correspondence with the NRC, we examined the conversations that Mr. Haynes had with the NRC.

As a consequence, on March the 26th of 1985, the FBI arrested Mr. Haynes. On July the 22nd of 1986 Mr. Haynes pled guilty in the United States District Court for the Southern District of Ohio, Columbus, Ohio, was sentenced to a period of five years' probation on each of two counts, to make restitution in the amount of $129,580 and to no longer deal in nuclear or atomic materials.

As a part of the discussions with Mr. Haynes, Mr. Haynes alleged on April the 22nd, 1986, that sometime before 1974 he took americium-241 waste to Wright-Patterson Air Force Base and gave the material to Jim Lewis, the base radiation safety officer.

Haynes' description of the material—and this is a quote out of our transcript—"The material was in two 80-gallon drums, well sealed and packaged, triple sealed in plastic bags. It was gloves and paper towels."

That particular allegation, as you already know, caused my office eventually to conduct another investigation on Wright-Patterson Air Force Base and associated circumstances. The first date of our interview on this particular investigation occurred on November the 20th, 1986. We closed the case in September of 1987. We were

investigating improper receipt and storage of americium-241 and withholding information from the United States Nuclear Regulatory Commission.

A brief summary of our investigation. We conducted 21 interviews, 12 U.S. Air Force military personnel, five civilian personnel employed by the United States Air Force, three NRC employees, one civilian person unaligned with either NRC or the U.S. Air Force.

We reviewed the following documentation: NRC inspection reports, court documents, interviews by the FBI, the Office of Special Investigation of the United States Air Force and NRC inspectors, U.S. Air Force minutes of meetings, U.S. Air Force radiation waste records, U.S. Air Force memoranda, memos of records, personal notes, U.S. Air Force procedure documents, NRC manual, U.S. Air Force incident reports and the DOD letter to the State of Ohio.

As a consequence of our investigation and review of the material, we elected to refer this matter to the United States Department of Justice on October the 16th, 1987, approximately 30 days ago. As late as yesterday I was personally in touch with and meeting with the United States Attorney's Office here in Dayton, Ohio, discussing the facts and merits of this investigation.

I wish to express my concern somewhat, Senator Glenn, that there are distinct possibilities that criminal charges may be levied against both military and/or civilian personnel in this matter, and I am concerned that the discussion and the evidence produced today may eventually have some negative impact. So I want to watch very closely our testimony in that regard.

Chairman GLENN. Let me break into your testimony just a moment and say we are concerned about that, too, and we have contacted appropriate authorities with the line of questioning that we were going to proceed with today to make absolutely certain we do not interfere with anything like that.

Now, we, of course, have an independent mandate in the Congress and in our oversight role, and it is always a fine line how far you go without interfering in some other areas, but your caution is very well taken, and I for one do not want to do anything that is going to foul up other investigations or other proceedings by whatever other government agency is under way. So we are concerned about that and aware of the problem. I want to make sure everyone can be assured we are doing everything we can to fulfill our responsibilities and at the same time not impede anything else that is going on with other branches of government.

Mr. HAYES. Thank you, Senator. That concludes my remarks.

Mr. THOMPSON. Thank you, Ben.

As Ben said, we will be occasionally counseled by him, when he feels that the discussion might lead us into an area that might be sensitive.

After I complete my statement, I think it might be helpful for the understanding of the public, as well as others here, that we get a detailed chronology of the Region III actions—that's the people who have been primarily responsible for following up the initial allegations and doing the actual inspection and clean up activities and monitoring those efforts at the Wright-Patterson Air Force base.

What I would like to do, though, is to provide you an evaluation of our assessment of NRC's performance in this case. As we said earlier, there were mistakes made. I think we wanted to learn from those mistakes. There are also some things that we think we did properly.

We think that some of the actions that we did in following up on the incident once we were aware of it were appropriate ones, were done properly, and we want you to know we have assessed our activities and know and do believe that we did respond properly once we fully understood the activity that——

Chairman GLENN. Mr. Thompson, I don't want to break in with questions, because we'd like to save those until you have had a chance to present your whole thing, but I think it might be very helpful to us to, rather than just take Region III, if you could just very briefly, maybe in one minute or so, line up for us the procedure when you hear something like that, where does it go. Who does it come from? How does it get to Region III? What is Region III? What is your responsibility, and then get into what you were just about to say. Will you do that for us?

Mr. THOMPSON. We will be glad to. In this particular case the Air Force is given a special broad license application which is administered by our Region IV office in Arlington, Texas. Their responsibility is for the oversight of the activities of the Air Force in administering its individual license activities at the various facilities it has throughout the United States.

The oversight licensing amendments are made normally to the Region IV office, as well as the reporting of any special events are made to the Region IV office in normal aspects. The Region IV activities also schedule the routine inspection activities of the facilities of other regions, as well as the inspections of the Radioisotope Committee and its functions there at Brooks Air Force base in Texas.

If there were an emergency, as I will mention later in my testimony, we have changed the reporting requirements for situations which would require immediate notification or prompt notification to NRC—those reports now come to an NRC duty officer who is on duty 24 hours a day at our Emergency Response Center in Washington, D.C., and he has the responsibility then to contact the appropriate region, as well as the NRC emergency duty officer who is responsible for deciding what the appropriate response of NRC is and the appropriate notification of other government agencies and state agencies. So the primary responsibility for oversight and the licensing of the Air Force broad license is with our Region IV office in Arlington, Texas.

The primary responsibility, however, for inspection activities would rest with the region in which the Air Force's particular facility would be located, and in this particular case it would be Region III, Mr. Bert Davis, and he will later on give us a detail of what he did and what his staff did in following up on those allegations and on their activities.

Chairman GLENN. Thank you.

Mr. THOMPSON. What I think also would be very helpful is for me to state very briefly what the framework in which we conduct our regulations is. The question has come up today. It's a very impor-

tant one, and it's one in which I think we need to clearly let you understand that the primary responsibility for the safe operation, the protection of the public, the protection of the workers, rests with the licensees. We are responsible for establishing the rules and the regulations that those activities are conducted under. In this particular case the primary responsibility for the activities under the Air Force is the Air Force. It's the Radioisotope Committee in Brooks Air Force in San Antonio. Nevertheless, we do monitor the activities of the Air Force through inspections, through reports, through follow-up from audits and doing our own independent reviews.

The Air Force is responsible for keeping Region IV fully informed of their activities in this matter. NRC is by its own nature, an audit function, and we really depend in large measure on the licensees' fulfilling their obligation to provide complete and accurate information to us on the performance of their activities, and this is especially true in a case where we have a broad-scope licensee who has many different facilities throughout the United States.

If I could turn now just a moment to talk a bit about our response to the incident at Wright-Patterson, beginning on October 23rd, when we became fully aware of the incident, and then I would like to evaluate our performance on what led us to conclude, or what led us to ask ourselves: "Are we doing the things today that we ought to be doing to assure that this type of incident won't occur again?"

Senator METZENBAUM. Will you first tell us, Mr. Thompson, how a man by the name of Haynes, a jeweler, can get radioactive materials? Can Mr. Jones, Mr. Smith, anybody else get it? What are your rules in connection with that?

Mr. THOMPSON. Let me say in hindsight, we have looked at this issue. I have been in charge of this office since February of this year, and in hindsight, clearly the Atomic Energy Commission and later the NRC, should not have issued a license to Mr. Haynes. We went back to look at the records to see how this occurred. The record was not clear.

He did submit an application. It was a controversial review that was done, and despite reviews by both the NRC licensing staff—I mean, the AEC licensing staff—and comments made by the Region III inspector, a license was issued over their objections by an individual who is now dead. I cannot tell you what the reason he issued that license was. I do know that we have taken steps, and I have reviewed the records. We are confident that an individual would not obtain a license of that nature today, and as you may know, the Commission, in its review of those activities, had terminated the license and had drawn the conclusion that he—Mr. Haynes—should not have a license and——

Senator METZENBAUM. Was there any political involvement in his getting a license?

Mr. THOMPSON. Sir, there was congressional correspondence we received at about the same time inquiring as to the status of the license. I do not know whether or not they played an influence. I have not been able to contact the people. Everybody who was associated with the issuance of that license is no longer either alive or with the Commission, and we have not been able to track——

Senator METZENBAUM. Who can get a license?

Chairman GLENN. Can I interrupt just a minute? Can you provide us copies of that correspondence you just referred to? We would like to have that for our records.

Mr. THOMPSON. We will be glad to provide that for the record, Senator.[5]

Senator METZENBAUM. Who can get a license? Can just anybody get a license to handle radioactive material?

Mr. THOMPSON. No, sir. We have requirements today that would require us to meet certain training qualifications that clearly were not in existence at the time that Mr. Haynes got the license.

We have changed our review process to go out and routinely do investigations and inspections of the facilities, which was not done at the earlier times.

Senator METZENBAUM. Will you advise us in writing what your previous procedures were and what your present procedures are in that respect?

Mr. THOMPSON. Be glad to provide that for the record, sir.[6]

Senator METZENBAUM. Proceed.

Mr. THOMPSON. Late on Thursday, October 23rd, when NRC Region III learned of the spill of americium at Wright-Patterson, Region III management decided to dispatch a radiation expert and compliance specialist from the Chicago office the next day, which was Friday, October 24th.

That same day NRC reached an agreement by telephone with Wright-Patterson Air Force Base and confirmed it later by letter that decontamination activities would be placed on hold until NRC had reviewed the decontamination practices and the plans and that the Radiation Safety Officer involved at Wright-Patterson would be removed from handling this incident.

At NRC's request, an additional inspection team from Oak Ridge Associated Universities were requested, and they arrived on site on Sunday, October 26th, to conduct additional independent surveys and to assist the NRC in the review of the ongoing decontamination process.

Based on the surveys, the results of the surveys, that is, both the surveys of the Oak Ridge Universities and the Air Force surveys which were available to us at that time, NRC concluded that there was no off-site contamination and that there had been no effect on the public.

NRC Region III also notified the State of Ohio of the spill and our initial response to the site on Monday, October 27th, the same day that the NRC Commissioners were informed. This notification was done in accordance with the NRC procedure.

A press release was also issued by NRC Region III that day. On October 30th, after reviewing the decontamination procedures, NRC authorized resumption of decontamination operations. Later Region III requested an investigation into the circumstances surrounding the reporting of the events by our Office of Investigations and continued to monitor the decontamination activities at the site.

---

[5] See pp. 137–142.
[6] See p. 143.

Later on, as a result of briefings we received, NRC reached agreement with Wright-Patterson base commander and the commanding officer of the Medical Center that three base personnel would no longer be involved in licensed activities.

Our overall assessment of NRC's response to the incident is that once NRC Region III learned of the major spill on October 23rd, their response was prompt and adequate to assure that the actions being taken by the Air Force were sufficient to protect the public health and safety.

Senator METZENBAUM. Mr. Thompson, three days ago the press reported that the FBI told the NRC that Mr. Haynes was alleged to have disposed of americium on Wright-Patterson in late 1970. The FBI told the NRC this information, I am informed, in 1985. Yet the NRC didn't go to Wright-Patterson until August of 1986 to investigate the matter. Why did you wait so long?

Mr. THOMPSON. Sir, my understanding is that that date was April 22nd, 1986.

Senator METZENBAUM. Say that again, please.

Mr. THOMPSON. It is my understanding that the NRC was not informed of the allegation until April 22nd, 1986, as was stated by Mr. Hayes earlier today, and we had been requested by the FBI agent involved not to interfere and take steps that could interfere with the sentencing and the judicial process that was ongoing at that time.

We evaluated the significance of the event, in fact, we concluded, because of two factors, that no immediate action needed to be taken by NRC. The first was that Mr. Haynes alleged that the waste had been there and shipped to Wright-Patterson for storage many years ago. Secondly, it was also alleged that the material had been disposed of and based on those two conclusions, we concluded that it was not an imminent threat to public health and safety to wait until the sentencing had been completed before we initiated our inspection activities.

You might like to talk to Mr. Bert Davis, who would maybe provide some verification.

Senator METZENBAUM. Let me read you what the paper says. The article appeared in the Plain Dealer. It was written by Keith Epstein and Marybeth Lane.

> The FBI yesterday denied responsibility for a lengthy delay in investigating an important tip that might have prevented two serious spills of highly radioactive americium-241 at Wright-Patterson Air Force Base near Dayton.
>
> "The Nuclear Regulatory Commission could have gone out there to investigate," said Terrence Dynan, the FBI special agent in charge at Cincinnati. "Hell, they could have gone out there that same day of the tip. Their responsibility is the public health. We were absolutely not doing anything to impede their responsibility. That stuff, americium, scares the hell out of me."
>
> William Axelson, a technical staff interviewer with the NRC, told the Plain Dealer this week that despite being told in April 1986 that two drums of americium waste products had been smuggled onto the base, NRC investigators didn't begin exploring the tip until August. Axelson says the delay was at FBI's request.

You had the notice in April that it was there. You didn't get out there until when? August or October?

Mr. THOMPSON. I think it was August. It might be helpful if you'd like to pursue that, Mr. Bert Davis does have some details that he would be able to provide the Committees on that matter.

Senator METZENBAUM. OK.

Mr. DAVIS. Shall I do that? I do have that as my opening subject in my prepared comments.

The information I have is that on April 22d, 1986, while under oath, at the U.S. Attorney's office in Columbus, Ohio, Mr. John C. Haynes, the former NRC licensee, informed the Region III staff members, an FBI agent and an Assistant U.S. Attorney, that sometime during the early 1970s he transferred an unknown and probably small amount of americium-241 as waste in two barrels to the Radiation Safety Officer at Wright-Patterson Air Force Base.

Mr. Haynes stated that the waste was added to Wright-Patterson Air Force Base waste and disposed of by Wright Patterson Air Force Base. The FBI agent present at the meeting on that day requested the NRC not to pursue the allegations until after Mr. Haynes' sentencing so as to not jeopardize the case.

Since the allegation was that the material had been disposed of and it consisted of an unknown, probably small amount of americium, there did not appear to my staff to be an immediate health and safety concern. Therefore, we honored the FBI request.

Senator METZENBAUM. Obviously, there was a health concern.

Mr. DAVIS. Yes, but given the information we had, we made the decision based on that information. Had we known that there were 2 curies or approximately 2 curies of americium on the base, we would have made a different decision.

Senator METZENBAUM. Didn't you have a responsibility to go out and check? That wouldn't have affected the criminal case. There would be no way to affect it. I mean, a reasonable person would understand that. I am a lawyer, but whether you are a lawyer or not, I would certainly tell you that going out to see whether the americium is there—you say you learned about it in August. The FBI said publicly that you learned about it in April.

Mr. DAVIS. No, no, I said we learned about it on April 22d.

Senator METZENBAUM. Or April 22d, right.

Mr. DAVIS. We waited until August—I forget the date in August. It was August that we went out and performed the unannounced inspection. We delayed from April 22d to August, because my staff had made the decision, or the determination, based on the information that we had, that there was not an imminent health-and-safety problem and concern.

Senator METZENBAUM. There was not?

Mr. DAVIS. There was not.

Senator METZENBAUM. They were wrong.

Mr. DAVIS. They were wrong as it turned out. Once later, whenever we learned that there was one drum containing about 2 curies of americium, then had we known that in April, we would have gone immediately.

Senator METZENBAUM. In order for Mr. Haynes to have got the americium, he had to have a permit. Wasn't he given a permit to buy that much?

Mr. DAVIS. He had a license at one time to possess large amounts of americium. We were under the impression for the last number of years that he did not have that amount of americium at his facility.

Senator METZENBAUM. In retrospect, would you next time go out immediately when you learn that the americium was there, rather than wait two months? If you had gone out earlier, we wouldn't be sitting here today.

Mr. DAVIS. If we had known or suspected that there were 2 curies of americium at the Wright-Patterson Air Force Base, we would not have honored the FBI's request and we would have gone out there quickly, like we did on October 23 or 24, whenever we were informed that there was a lot of material.

Senator METZENBAUM. As I pointed out before, the FBI totally disavowed that they asked you to do that. "Their responsibility is the public health. We were absolutely not to do anything to impede their responsibility. That stuff, americium, scares the hell out of me." That's what they say.

Mr. DAVIS. The gentleman's name that you mentioned is a different agent than the one that was involved in the meeting when my staff received this information.

Mr. THOMPSON. That's right, Senator, but let me say we agree with the FBI. If the FBI requested that we not conduct an investigation and we thought there was an imminent danger to public health and safety, we would move forward. There is no question in our minds that that's what we would do. We made the judgment in this particular case, because the material was alleged to be in storage. It was alleged to be a small amount and that it had been there for years, that there was no imminent threat to public health and safety, and delaying this until the sentencing, which in the case was toward the end of July, would not be an undue risk to public health and safety. In fact, I think the evidence shows that we did go out and do an inspection before any of the spills occurred. So our being there in July I am not sure would have made a significant difference, or even April.

Senator METZENBAUM. Mr. Thompson and Mr. Davis, I don't understand. If the FBI denies that they told you not to go out, but even if they had, what logical, conceivable reason would there be for not going out because they said a man was still up for sentence? What would affect his sentencing, whether you went out or didn't go out and protect the public health? I don't understand that. It is a non sequitur; it doesn't follow.

Mr. THOMPSON. If I might, Senator, Mr. Hayes, who is the individual who normally interfaces with the FBI on these type matters, might be able to shed some understanding of that philosophy.

Mr. HAYES. Senator, we were working with the FBI as I have already testified, and we were interested in seeing that the judicial process completed itself. A part of that judicial process, as you gentlemen know, is the trial and pleading and eventually sentencing of Mr. Haynes.

Again, I think the record clearly shows, Mr. Metzenbaum, that if we at NRC had perceived at that point, with the information that we had, that there was an immediate threat to public health and safety, we would have reacted as we did when we fully understood the situation.

You must also keep in mind that this man who had made these allegations just pled guilty to lying to the NRC, and when you

factor all of this in, we did not feel at that point that there was an immediate health and safety issue there.

Senator METZENBAUM. But you didn't know.

Mr. HAYES. Well, we did go out, Senator, in August——

Senator METZENBAUM. But not in April.

Mr. HAYES. No. We did go out in August and do a very detailed inspection survey before any contamination, before the opening of the drum, before any of this event unfolded, and that inspection report is a matter of our investigation. I believe it has been shared with the Senate staff, and if you read it closely, you will see that we could not—we could not confirm the allegation. And then we took additional steps, which will later unfold during this hearing. We did everything that I think we could possibly do at that point. Had we gotten, in my view, accurate information during that inspection process, then the NRC would have made other judgments, but we did not. So we were there on the scene.

Senator METZENBAUM. When you went there, did you go to the storage building? I am told you never even went to the storage building.

Mr. DAVIS. That's correct.

Senator METZENBAUM. That's correct.

Mr. DAVIS. The inspector that performed the inspection on August 20 went to the Air Force base. He reviewed the records associated with receipt of radioactive material, disposal of radioactive material, and the inventory of radioactive material on site. He also took a sworn statement from the radiation safety officer, and that gentleman denied the allegation. That was the extent of the inspection.

Senator METZENBAUM. Denied what allegation?

Mr. DAVIS. That the drums had been shipped from the John C. Haynes facility to the Wright-Patterson Air Force Base.

Senator METZENBAUM. He denied that?

Mr. DAVIS. He denied that.

Senator METZENBAUM. Now you have a situation where you don't go out as promptly as you can. Finally, you do go out in August. When you go out you don't inspect the material, you don't go to the storage facility, you don't see how it's actually being stored, take a statement that is a false statement, the man denied that it had been shipped, and I say to you—and Senator Glenn has raised the question in his opening statement—how can we be assured that this isn't happening in a hundred other places throughout the country?

Mr. DAVIS. Well, there had been an inspection, I believe, in 1985, of Building 4060 where the material had been stored. It was not found at that time. And my inspector was talking to what we thought to be a good licensee with reasonably good performance.

Senator METZENBAUM. "Licensee" being the Air Force or Haynes?

Mr. DAVIS. Wright-Patterson Air Force base.

Senator METZENBAUM. Yeah. Well, that's true.

Mr. DAVIS. I think I mentioned that already—I will repeat it. The allegations that we did have also, Senator Metzenbaum, was the allegation from Mr. Haynes was that in addition to the material that was sent to Wright-Patterson Air Force Base being un-

known but probably a small amount of material, which misled us. It was also alleged that that material had been mixed with Wright-Patterson Air Force Base waste and shipped off site. So the allegation we had was it was a small amount of material and it had been shipped off site.

Senator METZENBAUM. By this time you know that Haynes is a liar?

Mr. DAVIS. That's true, but under the circumstances——

Senator METZENBAUM. He is a convicted criminal; you can't take his word.

Mr. DAVIS. If you use that line of argument, you can also conclude that he is a convicted liar, he is lying about sending this stuff to the Air Force base.

Senator METZENBAUM. But your inspector goes there and doesn't go over to check and never checks the contents of the barrels in 1985 or 1986?

Mr. DAVIS. That's right. Let me say this——

Senator METZENBAUM. What is an inspector to do? Just look at some papers. You can stay home and do that.

Mr. DAVIS. If the inspector had gone out to Building 4060, he would not have opened the drums.

Senator METZENBAUM. I can understand that. [Laughter.]

Mr. DAVIS. Well, that would have been as dangerous to him as it subsequently turned out to be whenever they were opened. So he would have identified drums in the building—I think there were 27 or 29 drums in the building. He would not have had any way of knowing that the drum that was there contained 2 curies of americium. We do have to rely in our inspection program, on the veracity of the licensee as well as what we look at.

Now, I won't argue with you, Senator, that we should not have gone to Building 4060. I believe that that would have been a proper step to take in the inspection. I do feel, though, that had the inspector gone to Building 4060, he would have not identified that there were 2 curies of americium in a drum in Building 4060, the reason being americium is predominantly an alpha emitter, which is a low-energy radioactive material, and I just don't believe he would have been able to make the measurement to determine that that dangerous material existed there.

Senator METZENBAUM. Is there a way of checking the contents of a barrel without opening the barrel?

Mr. DAVIS. Yes there is. If you do a very sensitive radiation survey with sensitive instrumentation, you can do that. That is not something that we would normally do in our inspection program, given the information that we had.

Senator METZENBAUM. In retrospect, would you say that when you inspected the next time, you should have done that to all the barrels, knowing what the situation was, knowing this man had been found guilty, knowing that it was there?

Mr. DAVIS. In retrospect, if I suspected 2 curies of americium, we would have done a more extensive survey.

Senator METZENBAUM. Didn't NRC have some internal discussions about the radiation safety officer lying, talked about a polygraph test of that radiation safety officer?

Mr. DAVIS. Yes, sir.

Senator METZENBAUM. So at that point you didn't believe him. So if you don't believe him, you take his written statement, you do nothing more about it, and the barrels sit there and wind up creating all this problem.

Mr. DAVIS. In August, whenever the inspectors came back to the regional office, there was discussion on what further we should do. There were discussions on—let me say first, the inspectors were uneasy as to whether or not they had gotten the true story during that investigation. I think the reason for that was the nervousness or the demeanor of the radiation safety officer during the interview. We discussed, polygraph tests, but the final conclusion was that we would contact the Wright-Patterson Air Force Base wing commander and request the Air Force to have their Office of Special Investigations, I believe it's called, to look into the matter to determine whether or not the information we had received was true.

Senator METZENBAUM. You were so concerned about it that you thought that the radiation safety officer perhaps should be subjected to a polygraph test. That is more than just being a little bit uneasy. And you don't follow up yourself, you turn the responsibility back to the Air Force. I just have difficulty in understanding, Mr. Davis, but you go ahead and proceed with your testimony.

Mr. DAVIS. I believe Mr. Thompson was going to continue.

Mr. THOMPSON. Thank you. Because the former NRC licensee provided the material that was involved in the spill and the fact that two spills occurred before NRC was fully aware of the extent and the nature of those spills, we have evaluated the NRC performance in order to have assurances that this type of accident could not occur again. The first one I'd like to talk to, the one we just mentioned, is the licensing of J.C. Haynes, and as I said just a few moments ago, in hindsight, both the AEC and later the NRC should not have issued the license and subsequent license amendments that would have allowed J.C. Haynes to possess this material.

I have looked at our current regulatory framework to determine whether or not that would likely occur again, and I have concluded that it wouldn't, and the reasons I have concluded it would not is because we have made changes in our requirements that have been in place over the years since then and even some specifically because of this incident.

First, NRC has published guidance and required licensee training and experience. Applicants are now questioned more specifically about the location, the nature, the time and length of their training and experience.

Secondly, internal NRC staff guidance calls for the licensing staff to visit routinely the facilities of applicants prior to licensing to decide whether or not to issue a license to use large quantities of such unsealed radioactive material that was involved in this case and to interview the licensee's staff.

Thirdly, the waste disposal facilities for americium currently are limited by our rules and regulations under 10 CFR part 61 and state regulations concerning their application in state low-level-waste burial grounds. The waste disposal issue would have to be addressed prior to licensing, and J.C. Haynes would not have been

able to develop an acceptable disposal plan for his facility for the amount of material that he had.

Fourthly, applicants today must meet emergency planning requirements during licensing in accordance with licensing guidelines. Facilities such as the J.C. Haynes operation would not meet those requirements, which include alarms, safety systems and methods to notify off-site officials.

In addition, NRC is continuing to change its rules and regulations and we have a proposed rule-making which would promulgate financial requirements to require licensees to assure availability of funds to clean up contaminated facilities.

In summary, even in 1970 J.C. Haynes was viewed as an applicant having limited qualifications and facilities, but the regulatory climate was such that he was given "the benefit of the doubt." The regulatory climate today is much more restrictive, and an applicant must demonstrate the technical capability and experience before a license would be issued to possess large quantities of unsealed americium or other hazardous materials.

NRC staff has redoubled efforts to prevent marginal applicants from ever getting licenses to possess radioactive material. The J.C. Haynes case has been documented and thoroughly discussed many times in NRC staff workshops and management meetings, and we are continuing to improve our process of ensuring that licensees understand our expectations and of monitoring the performance of our many licensees through joint efforts of our licensing and inspection staff.

Another major area that we assessed in our evaluation of our performance is our ability to review the information that we did receive from the Air Force. Although the primary problem was unacceptable reporting to NRC by the Air Force, we believe that our treatment of information and communication between the Air Force and our regional offices and within NRC during the early stages of the incident could have been improved.

Had the Air Force not characterized the incident as "minor" on September 26th, the information would have immediately been communicated from Region IV to Region III. At that time and place the regulations would have had the report being sent to Region IV with an immediate notification. Region III is responsible for NRC's actions in response for Ohio. NRC's involvement on the site earlier might have averted the second spill inside the building.

During the period between September 26th and October 10th, on three occasions during discussions between the Region IV staff and the Air Force, the Air Force continued to classify this event as not reportable to NRC and as essentially a minor event.

When the Air Force reported escalating events associated with the minor spill on October 16th, NRC should have probed further to determine more precisely the significance of what had occurred, no matter how the Air Force characterized the incident. This kind of critical probing to assure complete information typically accompanies telephone reports from many licensees.

Region IV had mistakenly presumed such questioning of a licensee of the size and technical competence of the Air Force should not have been necessary. Similarly, had Region III staff been more sensitive to inquiries on October 15th from the Air Force about per-

sons licensed to have americium and low-keyed reports of a minor spill at Wright-Patterson, its response to the site could have been somewhat earlier. However, by October 15th, the Air Force had already opened the contaminated drum the second time, resulting in the more extensive contamination. As I will discuss later, NRC has taken steps to improve our communications with the Air Force for similar type matters.

Another area dealt with the timeliness of our response with the J.C. Haynes allegation, and I believe that we have already discussed that in sufficient detail. We would say that in hindsight, had there been earlier communications between the Region III staff and the Region IV about the potential that the Air Force had received unauthorized waste at Wright-Patterson, this information, coupled with other fragments of information being received, might have resulted in earlier recognition of the true nature of the problem, but it's difficult to say definitely. However, I can say today the practice is to clearly communicate this type of information concerning allegations between the regions and particularly where broad-scope licensees are involved.

Finally, I'd like to review the way our improvements in reporting these types of events and other events with the Air Force have taken place. NRC coordination of the oversight of the Air Force program has been discussed with the Air Force on several occasions since this incident. Region IV management met at Brooks Air Force base with the Air Force Radioisotopes Committee on December 18, 1986, to identify the lessons learned and improvements in communications of events at Air Force bases to NRC. Subsequently, on February 19th, 1987, the NRC formally requested documentation of the improvements the Air Force was making in this area. High-level personnel from the Air Force Secretary's office met with me and other senior NRC personnel after that request on February 24th and formally responded on March 19th, 1987.

The Air Force has improved its reporting process through a letter to all bases, revising reporting procedures, improving lines of communication and authority, and establishing methods to ensure that responsible Air Force officials understand their responsibilities.

The NRC has reviewed its procedures for oversight of the Air Force licenses with all regions and discussed these procedures during a management meeting in January 1987 and again in September of 1987. The need to be more sensitive to probing for factual information from licensees making reports of minor occurrences has been stressed to all those involved with licensee reports.

We have also sensitized the professional staff to the importance of thorough evaluations and communications of information concerning potential incidents.

In addition, this incident along with other incidents led us to amend our rules under 10 CFR Part 20 to have reportable incidents communicated directly to the NRC Headquarters Operations Center in Bethesda, Maryland. This center is manned 24 hours per day with the ability to contact senior management officials with technical background both at Headquarters and the regions, and they are on 24-hour emergency duty to evaluate such information.

Senators Glenn and Metzenbaum, we believe that once the NRC staff recognized the significance of this incident, the initial actions taken by the NRC to assure that the activities that the Air Force were taking adequately protected the public health and safety.

We believe that the Air Force ultimately cleaned up the site adequately. We must, however, continue to rely upon prompt accurate reporting of incidents by licensees, and the Air Force has improved their reporting procedures.

We believe that J.C. Haynes should never have been issued a license, and because of the increased regulatory requirements that I discussed, could not get a license today.

We have conducted follow-up examinations to assess how we, the regulator, can improve and have taken actions where we detected weakness, and we will continue to seek ways to improve.

With your permission, Mr. Chairman, I'd like to turn now to Mr. Bert Davis, who can go over the detailed chronology of Region III's interaction on this incident which may assist you in your probe of this incident.

Chairman GLENN. Who is going to do that, Mr. Davis?

Mr. THOMPSON. Mr. Davis has——

Chairman GLENN. That is a lengthy thing, because we are beginning to run out of time already here, and if we expect to get other panels on today, we have to move forward. Is it something that we need to do now, or is it something that can be submitted to the record so we have a more detailed knowledge of this?

Mr. DAVIS. It's six pages double-spaced that I have.

Chairman GLENN. Is it crucial to our hearing this morning that we understand this, or is this something that is more of a background nature?

Mr. THOMPSON. We will be glad to submit this for the record. I think it would be helpful to have that on the record.[7]

Chairman GLENN. I'd appreciate that if we could. Is there any particular—I see you don't agree with that necessarily. I know you have prepared to testify, and you'd like to give it, but I'd also like to keep the hearing moving along if we can here. Do you have any particular points you want to make out of those six pages?

Mr. DAVIS. We will submit it for the record.

Chairman GLENN. All right, fine. Thank you very much. Does that complete your——

Mr. THOMPSON. That completes our presentation.

Chairman GLENN. Mr. Martin and Mr. Lenhard, you have been remarkable in your silence. I don't want to cut you out of this thing here. Do you have anything to add briefly to this? I hate to have you come here for this and not have a chance to state anything about this from your viewpoint here, but I would like you to keep it brief if you have any comment.

Mr. LENHARD. No.

Chairman GLENN. Mr. Martin?

Mr. MARTIN. No, I have nothing to add at this point.

---

[7] See p. 237.

Mr. LENHARD. I submitted a statement for the record, Mr. Chairman. If you would like, I would make a very brief summary of that. It relates to how J.C. Haynes got the material originally.

Chairman GLENN. Briefly, if you could.

Mr. LENHARD. My name is Joe Lenhard. I am Assistant Manager for Energy Research and Development for the Department of Energy in Oak Ridge. I am a Federal employee and not an employee of Oak Ridge National Laboratory.

In my position I am, however, responsible for the management and execution of the Oak Ridge National Laboratory, which is a DOE multiprogram laboratory, executing broad programs in energy and basic sciences. In addition to the execution of those programs in energy and basic sciences, the Oak Ridge National Laboratory has historically been assigned the responsibility to operate as the center for the development, the production and the sale of certain radioactive and stable isotopes. Included among those stable isotopes is americium-241.

The radioactive and stable isotopes are made available to a broad range of industry, hospitals, even foreign nations. In more than 40 years ORNL has distributed over 400,000 packages of radioisotopes to organizations and groups throughout the county. Last year, for instance, we made something of the order of 3,000 shipments of radioactive materials. In some of the cases the materials are both produced at the Oak Ridge National Laboratory and distributed. In other cases, as in the case of americium-241, the material is produced by other DOE facilities and Oak Ridge National Laboratory merely serves as a distribution center.

Getting to the specific problem at hand, in order for any individual to obtain radioisotopes from the Oak Ridge National Laboratory he must be in possession of an NRC license or a license from a state who has delegated licensing authority by the NRC. There are several—the Oak Ridge National Laboratory uses a technique to verify the existence of this license, and those techniques are spelled out in NRC regulations.

The one that the Oak Ridge National Laboratory uses is to require a written confirmation by existence of a license number on the order form for the radioisotope and an expiration date and beneath that a signature of the official of the organization. On very, very rare occasions, like a medical doctor needing an isotope on an emergency basis for a therapeutic or diagnostic test, the Oak Ridge National Laboratory might accept a verbal confirmation of a license to be followed up within 10 days by written notification.

Now, moving to the J.C. Haynes case——

Senator METZENBAUM. Before you finish that, Mr. Lenhard, let me state, I don't read the regulations the way you read them. I have the regulations before me, and as I read them they basically—you say you have got to have this license, but as I read them, they basically say the person buying americium or other material can do one of three things: show a license to DOE, sign a statement saying they have one or simply say that they have a license and say they will send written certification within ten days. Now, I am reading that from Paragraph 30.41,

Transfer of by-product material,

And that's almost an open door; you can do it on an oral basis. Then it goes on to say,

The following method for the verification required by Paragraph (c) of this section are acceptable. The transferor may have in its possession and read a current copy of the transferee's specific license or registration certificate—

Then you say—

(2) the transferor may have in his possession a written certification by the transferee that he is authorized for a license or registration certificate to receive the type, form and quantity of by-product material to be transferred, thus find the number of registration certificate number by issuing agency and expiration date

And then for emergency shipments; it states,

The transferor may accept oral certification by the transferee that he is authorized by license or registration certificate to receive the type, form and quantity of by-product material to be transferred, specify the license or registration certificate number, issuing agency and expiration date, provided the oral certification is confirmed in writing within ten days.

Do I understand that to mean you can pick up the telephone, say, "I need it on an emergency basis," make up the type, form and license that you claim that you have and have it sent to you?

Mr. LENHARD. You have read exactly the NRC procedures. I meant to indicate to you that we do No. 2 and 3 there, not the first one. We do not collect a copy of the license from the licensee. We require him, as that regulation stated, to certify that he has a license.

Senator METZENBAUM. What if he lies? What if he lies? I mean, a man by the name of Haynes, my guess is he would have lied. My guess is a lot of people would lie. There is no reason to believe that people who would want this radioactive nuclear material wouldn't be willing to give you a false statement, and you are turning over to them material that can endanger the lives of thousands of people. I don't understand that procedure.

Mr. LENHARD. Well, all I can really add to that is that in 40 years of doing this, we have never, to our knowledge, sent any radioactive material to an individual who did not have a valid license.

Senator METZENBAUM. I can only say this to you, Mr. Lenhard—as one of the Chairmen of a Committee with oversight with respect to matters of this kind, as well as Senator Glenn's Committee, I think that's a terrible procedure, to be able to accept oral certification by the transferee that he is authorized by license or registration certificate to receive the type, form and quantity of material to be transferred.

We are dealing with deadly material. I don't understand.

Mr. LENHARD. If I could add just one more thing, I mentioned earlier that oral certification, sir, is extremely rare, and the only occasion, really, where it happens is when it's a hospital who is requesting radioisotopes on an emergency basis for some diagnostic or therapeutic material and we are familiar with the hospital.

Senator METZENBAUM. You also have the second procedure in that the man can say he has a license.

Mr. LENHARD. Yes, sir that's the one normally——

Senator METZENBAUM. And if he says that, you give it to him?

Mr. LENHARD. That's correct.

Senator METZENBAUM. Without any further proof.

Mr. LENHARD. That's correct.

Senator METZENBAUM. I have to say to you that I just think that that's an unbelievable procedure, and I would strongly urge you to change that procedure promptly. I don't think that is a responsible position to take in distributing nuclear material.

Mr. LENHARD. Well, I think your observation is very wise, sir, because my supervisor, the manager of the Oak Ridge Operations Office, in view of the many studies, that you all know are going on in regards to safety documentation and safety procedures, directed me to evaluate all of the procedures related to our isotope sales and distribution activities, and the department will do that.

Senator METZENBAUM. Will you advise the Committees, Senator Glenn and myself, within the next 30 days what, if any steps are going to be taken to change these procedures, because that is the thing I would try to draw upon Senator Glenn if he agrees with me, provide legislative direction, but I would much prefer that you do it on your own.

Mr. LENHARD. We will do that, sir.[8]

Senator METZENBAUM. Thank you.

Mr. DEWINE. Mr. Chairman, could I say something?

Chairman GLENN. Yes, go ahead. Briefly, what I was going to do is have a question period. We have sort of violated that going in, but we will have five minutes for each person here on the questions, we will have a second round if necessary, so everyone does have a chance to question. Go ahead, take your five right now.

Senator METZENBAUM. I think I have used mine already.

Chairman GLENN. Howard is up for his sixth round of questioning.

Mr. DEWINE. Gentlemen, you have described the procedure that would be used and the criteria for Mr. Haynes in the future. I am curious, though, whether or not the reason that the person wants this material in any way affects whether he gets it? The hypothetical I would use, let's take a jeweler in the future who has that wonderful idea that he wants to turn diamonds into a different color or maybe he's got an idea he wants to turn rocks into diamonds or something.

Let's assume he meets all the criteria. Let's assume he's got the money to secure his facility and he knows how to dispose of it, et cetera; does he get it?

Mr. THOMPSON. Sir, the current practice is that normally the application would have some purpose, typically, in the medical field or in some research activity that would not be called frivolous. The issue related to gemstones has come up as a result of irradiation of topazes in some of the foreign countries, as well as in some of the research reactors in the United States, and that issue is currently before the Commission to decide whether or not our policy in that respect would change. Currently we would not authorize the irradiation approach for gemstone type of activity, so we would expect we would not—the current practice and policy, we would not do that.

---

[8] See p. 144.

Mr. DEWINE. I may have missed that. I didn't hear any of that criteria as far as——

Mr. THOMPSON. That is the current policy right now, that we would not have issued a license for someone who wants to enhance material that may become irradiated. I must be clear here that I think there is a technique that was done with respect to the diamonds is not as clear, because it does not become a radioactive material itself as a product. It has its radioactivity contamination on the outside which could be removed. But the Commission is addressing this as a policy issue right now as we are meeting, they have a commission paper before them presenting options addressing this matter.

Mr. DEWINE. So the reason for use is a criterion, then?

Mr. THOMPSON. That is correct. It's not to say, though, that precisely the application that J.C. Haynes had would have been precluded; it's not as crisp as the irradiated gemstones which do become radioactive themselves. So typically we do look at the application. We normally expect that the activities would be ones that would not be frivolous.

Mr. DEWINE. Let me move to another area. You may have covered this, but I did not catch it if you did. What has to take place now for Region IV to inform Region III about something like this? There obviously was a communication problem involved here. Has that been corrected, and what is the trigger? What has to happen?

Mr. THOMPSON. I'd like for Mr. Martin to respond to that, if he could.

Mr. MARTIN. The actions that we have taken to increase the sensitivity of the staff to become more probing when we get reports, which is still the fundamental base upon which we must act. We get verbal reports from licensees. It then relies on technical staff to start probing behind these reports to see if we are confident that we are getting full and complete and sufficient technical information to judge whether there is a problem or not. We have, in fact, issued further guidance to the staff on all such matters, not only at materials licensees and certainly not just focused at the Air Force, but all events that we become aware of, to just increase the sensitivity.

Now, as an example, since the time of the event at Wright-Patterson when the Air Force fighter aircraft went into the side of the Ramada Inn in Indianapolis, the same day the Air Force informed us that there was a small machine part made of depleted uranium, and two of the instruments on that aircraft had various small quantities of radioactive materials, and we called Region III and informed them of that the same day.

This is a matter of sensitivity. None of those issues, the quantities of the material of and by themselves are technically or legally reportable under our regulations. The quantities are too small, but it becomes an issue of how sensitive you are to the potential concerns that might be raised relative to a subject, even if it does not constitute any sort of a health concern, but there might be a general public concern about a lack of understanding on a subject. So that it becomes an issue of sensitivity, and we have taken a number of steps in order to raise that sensitivity of the staff.

Chairman GLENN. Thank you very much.

I understand Mr. Haynes license was issued—when, 1970 or 1971? Under the old AEC; is that correct?

Mr. THOMPSON. I believe that is correct. His initial license was granted August 18, 1970, with a number of amendments that occurred that increased the amount of material that he is able to have.

Chairman GLENN. Is that good until revoked?

Mr. THOMPSON. Normally, these are good for about a 5-year period.

Chairman GLENN. What was his? Was his good until revoked?

Mr. THOMPSON. I just don't remember. Let me see if I can—yes, it was five years.

Chairman GLENN. Five years?

Mr. THOMPSON. Five years.

Chairman GLENN. They are renewed, then, every five years?

Mr. THOMPSON. There is a provision in our regulations that if an individual applies for renewal prior to the expiration of that 5-year period, the license remains valid during the period in which it's under review.

Chairman GLENN. Is there a limitation on the amount of material he can get on that license?

Mr. THOMPSON. Yes, sir.

Chairman GLENN. How do you keep track of that? If he can go to any national lab, then, and pick up this material, can he go to Oak Ridge, get some, go someplace else and get some more.

Mr. THOMPSON. Theoretically, I believe that's true. What we do—and I will verify this—we conduct inspections. There is a certain frequency for various types of licensees and we would conduct inspections to determine the extent to which he had receipts for the material at his facility.

Chairman GLENN. When was the last time Mr. Haynes' license was reviewed? I presume in 1985 or sometime around that. Why was it renewed when we knew he was suspect all along?

Mr. DAVIS. The information I have here, it was renewed in April of 1978. If Mr. Hickey has different information, I'd appreciate him giving it to me. And then there were certain actions after that taken to modify the license, because of our concerns with respect to how Mr. Haynes was conducting his license.

Chairman GLENN. Was it renewed in 1983 again, then?

Mr. DAVIS. The information I have is that on August of 1983 the license—he requested termination of the license. I don't have—according to my chronology, I don't have anything that would——

Chairman GLENN. As I understand it, his license at that time was to maintain what he had, not to get new; is that correct?

Mr. DAVIS. That's correct.

Chairman GLENN. Did Haynes keep his stuff at more than one location?

Mr. DAVIS. The answer is yes.

Chairman GLENN. And I don't see what is to prevent someone from getting multiple amounts. Was there a specific amount that he could not go beyond?

Mr. DAVIS. Yes. He was licensed—he started out with a license to obtain and possess 300 millicuries of americium-241 in sealed sources. That license was then amended on May 18th, 1971, to

permit 7 curies of americium in any form. It did not have to be a sealed source.

Chairman GLENN. How do you keep track of that once he has it? It's apparently a pretty loose system.

Before my time runs out, let me get to a bottom-line question here: How many other licenses such as that exist today, are still in effect? I will ask it of anybody.

Mr. THOMPSON. There are a number of licenses for individuals to possess small amounts of americium, particularly researchers in universities. Let me turn to my staff and see——

Chairman GLENN. How do we know they only have that small amount, though? How do you know they have not made multiple requests from different places and they have now got it? Who keeps track of the total here? How do we know somebody doesn't have a hundred curies that they can dump in the vent system in this building, for instance, if they are interested in terrorism or whatever, at the Capitol or the World Trade building, and what happens then?

Mr. THOMPSON. As I mentioned earlier, we follow up on our licensees with three methods. One is reviewing the reports, one is conducting inspections, and one is doing independent measurements if we believe the information we have would warrant us to go out and conduct such an inspection, which was the case in J.C. Haynes. Once we had information that appeared to us that he had material that he was not authorized to possess we went out and did a detailed inspection to determine what he did.

Chairman GLENN. Yes. How many places in the whole nuclear industry can a person get americium as just one element here, americium, and how many other places could he apply to to get this material?

Mr. THOMPSON. The bulk material, the only place he would get it is our Oak Ridge National Laboratory.

Chairman GLENN. That's right, nobody is out there——

Mr. THOMPSON. Don't misunderstand. There are people who buy it and are redistributors for it, particularly for smoke alarms. Americium is used for smoke alarms in millions of homes.

Chairman GLENN. Is that tracked, also, as to who can get the stuff? It's quite legitimate, commercial uses. I am not trying to downplay that. That's good. How do we track the stuff to make sure that somebody doesn't have a stockpile of 500 curies off here someplace?

Another question here. My time is up, but just one more question. If Oak Ridge is the only place, how much americium have you licensed over, say, the last ten years? How much is out there someplace that we don't know about?

Mr. LENHARD. A great deal, sir. For instance, Mr. Haynes had ordered twice in I971, a total of 6 grams.

Chairman GLENN. Grams?

Mr. LENHARD. Yes, 6 grams of americium.

Chairman GLENN. What would that be in curies?

Mr. LENHARD. In curies, that is about 18, little less than 20 curies.

83-464 0 - 88 - 2

Chairman GLENN. In other words, that would double his supply, but I am asking, how much have you put out to all the licensees. Do we have a figure on that?

Mr. LENHARD. During peak periods of well-logging——

Chairman GLENN. No, that isn't. That isn't——

Mr. LENHARD. It's 2,000 grams.

Chairman GLENN. How much was put out there someplace over the last, say, 10 years or so. Can you give us an estimate on that?

Mr. LENHARD. Hollis, give me the number.

Chairman GLENN. Just trying to get an idea whether we have got 50 out there or 50,000.

Mr. LENHARD. It's tremendous amounts for well logging. That number, Senator, would be about 82 kilograms, which is about 70 pounds [9] of this material, primarily in sealed sources for well logging.

Chairman GLENN. If we related it to Mr. Haynes' curies—how much did you say again?

Mr. LENHARD. Seventy pounds. That is about 5,000 times as much as Mr. Haynes had.

Chairman GLENN. OK, my time is up.

Mr. DAVIS. Senator, may I just add one thing, so the record is clear? You sort of interrupted me, and I didn't want the record to remain that I said he was licensed for only 7 curies. There had been a subsequent license that authorized him up to a hundred curies.

Mr. LENHARD. Twenty-five.

Mr. DAVIS. Oh, I am sorry, subsequently authorized up to 25 curies of americium.

Chairman GLENN. Total.

Mr. Hall?

Mr. HALL. Thank you, Mr. Chairman. As I listened to the testimony of some of the questions and answers, I received a briefing just about a week ago from Colonel Kollar. My biggest fear is what we don't know. Obviously, we don't know up here, and probably you don't know from the standpoint of people like Mr. Haynes, what else is out there and what might have been done with americium.

Now, we do know a certain portion of it came to Wright-Patterson Air Force Base. But in questioning Mr. Haynes, did he disclose in any way that there was any other americium sent to any other depot in Ohio or disposed of in any way in Ohio?

Mr. DAVIS. I am going to try to answer that, and if I say anything incorrect, I would appreciate if the staff would correct me. When we went down—obviously, Mr. Haynes had material that he stored off the legally licensed place of use, so that when we went down there and inspected we didn't find it. When we went down finally to execute the decontamination of that place, we attempted to do an inventory on all the material.

I believe Mr. Haynes had 19.4 curies of material that his records showed that he had received. We located, I think, about 10½ curies at a site, a farm site, where it was not authorized to be. We did an

[9] In actuality, 82 kilograms in approximately 120 pounds, not 70 pounds.

inventory of the material that was recovered as the John C. Haynes facility was decontaminated and decommissioned. Then—now we have found the approximately 2 curies of americium at the Wright-Patterson Air Force Base.

Now, when you take all that we have recovered and you consider the inaccuracies in the measurements of how much we have, you measure and you say, we have 10 plus or minus a certain amount, depending upon the precision of the determination, the quantity that John C. Haynes received, the 19.4 curies, falls within the amount that we have recovered plus the error band on what we have recovered. Now, that gives us some sense that we have recovered what Mr. Haynes had, but I wouldn't sit here and tell you we are a hundred percent sure.

As you may know from the records, there was a second barrel alleged to have been involved in the transfer of material from Haynes to the Air Force base. That second barrel has not been located. We can logically, based on the information we have, cause ourselves to believe that that second barrel was likely disposed of with Air Force waste, as Mr. Haynes alleged, but we are not a hundred percent sure of that.

Mr. HALL. Americium, when you talk about curies, I don't quite understand that particular term. And another thing about americium what does it mean when—how long does it stay toxic, if, in fact, this is dumped in some farmer's field?

Mr. DAVIS. It might help if I read to you something that I had our staff put together on the hazards of americium, and I think if I read it to you it will be more meaningful than if I just try to say it.

Chairman GLENN. The short answer is it has a half life of 450 years, I believe.

Mr. DAVIS. 458 years. The material—shall I read it. Its a couple of paragraphs.

Chairman GLENN. All right.

Mr. DAVIS [reading]:

> Americium-241 is a man-made radioactive element, produced in a nuclear reactor, that emits high-energy alpha particles and low-energy gamma radiation. It has a half-life of 458 years—that is, it loses half of its radioactivity every 458 years. Americium oxide powder may be readily dispersed in the atmosphere.
>
> The principal concern for americium-241 is if it is inhaled or absorbed through a skin wound. Upon reaching the body's circulatory system, it deposits at three main sites (1) skeleton (red bone marrow and bone surface), (2) liver, and (3) gonads.
>
> Americium-241 is, in general, less of a radiation hazard than plutonium or other radioactive elements with similar properties (that is, what is called transuranium actinides). However, its effects on the reproductive system and development of the placenta are more damaging than plutonium. If ingested, americium oxide tends to pass through the body without any significant deposition and therefore would not be expected to cause a long-term hazard.
>
> The material is not a significant radiation hazard outside the body, because the alpha particles emitted are stopped in very short distances of air. The gamma radiation is low energy and would not cause a significant radiation dose except if the material is kept close to the body over a long period of time.

And then it goes on to say it's typically used in smoke detectors, moisture and density gauges and that sort of thing.

So the real danger is if you breathe it.

Mr. HALL. Are you saying that you think you have accounted for every portion of americium that has been given to Haynes?

Mr. DAVIS. I say that we are not a hundred percent sure of that, but the amount of material that Haynes got, when compared to the amount of material that we have recovered, the amount that he got falls within what we recovered and the error band on what we have recovered.

Mr. HALL. I will ask one more question relative to the base itself. When you inspected the base, do you feel confident that every drum at the base now is marked sufficiently to know whether, in fact, the americium is there or not there?

Mr. DAVIS. My understanding now is that the contractor that the Air Force brought in to assist in the recovery from this incident, Chem Nuclear Corporation, has been retained by the Air Force to do an inventory of the drums of radioactive material on the Air Force base and that they have not identified the second drum. They have not found the second drum.

Mr. HALL. Are all the drums that supposedly contain waste at Wright-Patterson, are they marked?

Mr. DAVIS. Do we have an answer to that?

Chairman GLENN. We will have the Air Force testify on that.

Mr. DAVIS [conferring with Mr. Caniano]. OK, I am told that there is still one drum at the Air Force base which is not marked, and they do not know the contents. I understand that they do not believe that it is the drum from Haynes. That is all the information I have here.

Mr. HALL. Thank you, Mr. Chairman.

Chairman GLENN. Thank you. Just on the effects on the human body, as I understand it, americium-241 is a bone seeker. Once it goes in the bone, then the body does not pass it off as it would normally be expected to be in the other parts of the body.

Mr. DAVIS. Yes. Do we know the biological half-life in the bone?

Mr. CANIANO. In the area of a hundred years.

Mr. DAVIS. We normally don't live that long.

Chairman GLENN. It gets sort of academic at that point.

Senator Metzenbaum, do you have other questions here? We are on a 5-minute round.

Senator METZENBAUM. I am not going to ask any questions. I think I have taken enough time, but I do have here a Health Services Management inspection of the Air Force Inspection Safety Center, and they don't seem to agree that there is only one unmarked barrel on the base. It says, "many containers used to store radioactive materials, especially in Building 470, exhibited illegible, deteriorated or incomplete labeling to identify nuclides, quantity of radioactivity and/or date." So that doesn't quite agree with your statement that it's only one barrel that is unidentified.

Mr. DAVIS. It certainly does not, and with that information we will perform an inspection to determine what is or is not there.

Senator METZENBAUM. Do you have the capability to determine the radioactive material? I would strongly urge you where you don't know for certain that you do check, use that procedure in order to check these barrels, as well as the one you mentioned. Is that such an impossible task?

Mr. DAVIS. We will perform an inspection down there and attempt to verify the information you have provided.

Senator METZENBAUM. Would you advise the Committees as to the results of that, please?

Mr. DAVIS. Yes, we will.

[The information referred to follows:]

RESULTS OF REGION III INSPECTION RELATED TO RADIOACTIVE WASTE AT WRIGHT-PATTERSON AIR FORCE BASE (WPAFB)

On December 2, 1987, Region III conducted an inspection of Building 470 referenced in the Health Services Management Inspection Report of the Air Force Inspection Safety Center. The inspection revealed that there were three drums whose contents were not known. NRC and WPAFB surveys of two of the drums did not reveal the presence of any americium-241. The third drum did reveal americium-241. Upon opening of the drums in a controlled area under NRC observance, the results of the radiation surveys were confirmed. The first two drums contained various isotopes that WPAFB is authorized to possess. The third drum contained americium-241 in the form of smoke detector cells, which WPAFB is also authorized to possess. This radioactive waste was subsequently repacked and shipped to a commercial waste disposal site on December 21, 1987.

Note: The one drum with approximately 3 Curies of americium-241 that was a part of the J.C. Haynes waste was still on site awaiting final transfer arrangements with DOE at the time of this inspection. On January 22, 1988, this drum was shipped by rail to a DOE facility in Idaho for storage awaiting disposal.

Senator METZENBAUM. Thank you, Mr. Chairman.

Chairman GLENN. I have a couple more questions. We will have another round here if anyone has any additional questions. I have a couple of additional questions before we move on to the next panel here.

You issued the Air Force a broad scope license. Now, that goes, as I understand it, for all Air Force bases wherever this material may be stored; correct?

Mr. THOMPSON. The license itself goes to the Air Force, which is administered there at the Brooks Air Force base at Wright-Patterson Air Force Base.

Chairman GLENN. How many licenses like that, that kind of a broad license exist today?

Mr. THOMPSON. We have one with the U.S. Navy with that same type of broad scope. Those are the two major ones. Then we have others that will go with hospitals and some radiographers that have some testing activities throughout the United States.

Chairman GLENN. You have criticized the Air Force for characterizing this as a minor spill, at least early on. How many such minor spills have you had, minor events, have you had reported from other Air Force activities wherever?

Mr. THOMPSON. Other Air Force activities since this particular incident?

Chairman GLENN. Before or after, either one. What I am getting at, is this a common type reporting, and if so, I wonder if they are all as minor as we think they are across the country?

Mr. THOMPSON. Let me ask maybe—I thought Mr. Martin gave some comments of some of the reporting sensitivity that we have today with the Air Force reporting, so maybe you can summarize what our experience is as to that.

Mr. MARTIN. I just glanced back to look at my staff. With regard to reports of contamination spills, they occur very infrequently. Very infrequently. Most of the reporting that we get have to do with such things as violations of their internal procedures, devices

that have been lost or mishandled, things of that sort. But the open air or surface contamination due to a spill or mishandling of material is extremely rare to receive a report like that. So it is a relatively unique circumstance to get such a report.

Chairman GLENN. Do you all agree with that?

Mr. DAVIS. Senator, you asked the question with respect to Air Force and minor spills. We did have events in Ohio here a couple of years ago where a well logger, a well-logging service who was licensed to have encapsulated cesium, which is another radioactive material. The well logger was doing something that he was not supposed to do by his license in that he was machining his source, and he ruptured the source, some of the radioactive material got out. It was tramped out of the building by people. This occurred in about 1985, and we worked closely with the State of Ohio and the NRC to effect a clean-up of that. So there are instances like this that we have had in Ohio.

Chairman GLENN. How many other types of material require a license that are radioactive and are dangerous?

Mr. THOMPSON. That's kind of hard for me to answer. We have about 8,000 licensees in the material program in the United States, and they will be authorized to handle, you know, any of the radioactive-type things that are not naturally occurring. Obviously, there is a varying level of hazard associated with each of these and that we have to look at—some of them are as minor as the smoke detectors with the encapsulated——

Chairman GLENN. Well, you had them categorized in different importance levels. In other words, the really bad stuff, the dangerous stuff, you track it and keep track of where it is, like Mr. Haynes' americium, and so on, and then you get down to the lower, lower levels, I know you are not going to go out and survey every hardware store on their smoke detectors across the country. But how do you break these things down?

Mr. THOMPSON. We break them down to various orders of priorities, and we would be glad to submit that for the record, but I don't know precisely how many Priority 1, which is our key, highest risk activities, which we inspect more frequently, look at more carefully. I guess I can't tell you exactly.

Chairman GLENN. Americium is in Category 1?

Mr. THOMPSON. At the time the license was issued I believe it was not. I believe today the unsealed americium sources would be.

Chairman GLENN. This second barrel, do we have any idea where the second barrel went. This is transuranic waste, now, this is higher than just the low-level stuff. Is there a chance it may be in a low-level waste site? Is that legal? Do we have any idea where that went? Is it still sitting around Wright-Pat someplace, or off in a landfill? Do we have any idea?

Mr. THOMPSON. We are not sure where the barrel is. However, I should state that if it were shipped earlier than about 1978 or so, there were not the current rules and regulations concerning control of americium that there are today.

Chairman GLENN. OK. When Haynes got his stuff at Oak Ridge, what kind of conveyance did he put it in, or if somebody ran into him out on the road, would this have been ruptured? Did he have

it in a cask? Did he have it in a high-impact vessel of some kind, or do they give it to people and they take off down the road?

Mr. LENHARD. We ship it; they don't come and pick it up. We ship it in DOT-approved containers. They are shielded containers, well-constructed, stainless steel inside and, of course, it's a powder. They are virtually indestructible—well, not quite indestructible.

Chairman GLENN. These are high-impact casks?

Mr. LENHARD. This would not be a cask.

Chairman GLENN. It's not?

Mr. LENHARD. This was a Type A quantity. Large quantity.

Chairman GLENN. Do you ship by air?

Mr. LENHARD. Could have been shipped by air, yes.

Chairman GLENN. Would it take a crash impact.

Mr. LENHARD. Type B package, Type A package? I don't know that sir.

Mr. THOMPSON. There are two types of packages, Senator. Typically the Type B packages, the ones that are licensed by NRC, are the high-integrity type, which would be expected to withstand the impact of fire, drop test, puncture test. The Type A packages, which are approved by the Department of Transportation, would not be expected to maintain the high integrity, and the protection of the public health in those cases is achieved by limiting the small amounts of radioactive material that is allowed to be shipped in those type packages.

If the quantity of americium is greater than a certain amount and it turns out to be, I believe, 8 millicuries today, that amount would have to be in a Type B package.

Chairman GLENN. That would be another area to look into. If you are in an air crash, you already have enough problems without americium coming up out of the baggage compartment. So maybe that's another area you would want to look into.

You are saying nobody today would pick this up at your facility; is that correct?

Mr. LENHARD. No, sir. We ship by common carrier.

Chairman GLENN. Well, Mr. Haynes didn't tell us the truth then. He said he picked it up himself. That's wrong.

Mr. LENHARD. I guess I better check my facts if he said that. I don't know.

Chairman GLENN. Could you reply to us on that?

Mr. LENHARD. If we are able to determine. That was in 1971.

Chairman GLENN. My time is up on the second round. Howard, do you have any questions?

Senator METZENBAUM. No.

Mr. DEWINE. Just one question. You all testified on August 20th you went out to the base and you basically checked the records. You did not do a physical inspection; is that correct.

Mr. DAVIS. That's correct.

Mr. DEWINE. If you had done a physical inspection, would you not have seen that some of the items were not labeled, and would that have meant something to you, or not?

Mr. DAVIS. I understand there are four or five drums in Building 4060 that were not labeled.

Mr. DEWINE. What would you have done—is that a red flag, or is that something that would have been expected, or what?

Mr. DAVIS. I don't believe the Air Force license requires their drums to be labeled. Is that correct?

I am informed that it is NRC regulations that do not require the drums to be labeled when they are in storage like that.

Mr. DEWINE. Do you think it might be a good idea to change those regulations?

Mr. DAVIS. I think it might be.

Mr. DEWINE. Thank you.

Chairman GLENN. Mr. Hall?

Mr. HALL. Thank you, Mr. Chairman. I have two questions. Do we have any clue as to where that unmarked barrel, that lost barrel, might be? I mean, from Mr. Haynes or Mr. Lewis. Or from the Air Force?

Mr. DAVIS. I don't know where the unmarked barrel is. We do have information that there were a number of drums shipped from the Air Force base during the period of time when that barrel was probably at the base, but as I understand it, the review of the records of shipment from the Air Force does not identify that material being shipped and in fact the records from the Air Force do not identify having received the material from John C. Haynes.

Mr. HALL. If that barrel would go to a normal place that you would dump material like that, will it stay contained in the barrel, or will it seep out? What is the procedure in a case like this? What is the procedure, what happens to that barrel over a period of years?

Mr. THOMPSON. For the level of material that is apparently in there, it falls into the transuranic, and there is no approved disposal facility for transuranics. The government is developing such a disposal facility, the WHIPP facility, and it's expected to be open later this year. That would be geological depository with specific site and type of requirement associated with the container to comply with the containment needed for disposal. If it's a small amount of americium which is like less than like a hundred nanocuries per gram, it would be in what is called a Class C disposal container, which is a tight, secure item that would be placed in a low-level waste burial ground, which would be expected to maintain its integrity over hundreds of years.

Mr. HALL. Is the NRC satisfied, are you men satisfied that people, the residents and the people at the base and the people at the surrounding area are not at risk as a result of this spill?

Mr. THOMPSON. I will let Mr. Davis, who is responsible to the region, respond.

Mr. DAVIS. Yes, as a result of the decontamination efforts performed by the Air Force, as a result of our own radiation surveys and as a result of the surveys that were performed by the NRC's contractor, Oak Ridge Associated Universities, we are of the view that there was no significant release of americium to unrestricted areas outside the Air Force base.

Mr. HALL. So you are satisfied and convinced that there is no risk; is that right?

Mr. DAVIS. Yes. Now, let me say one thing. We are going to, at the conclusion of their decommissioning efforts, we are planning to do a confirmatory, final survey to ascertain whether the facility there at Building 4060 can be released for what is called unrestrict-

ed use. It is our expectation, based on having reviewed what the Air Force's plans were and looking at those periodically as they were being executed, that they have done a good job, but we have yet to do the confirmatory survey, and I believe that is going to be done next week.[10]

Chairman GLENN. Thank you. We know that there was talk about how they were going to sneak some of this stuff off the base. Now, I don't know whether that ever occurred or not or it was just discussed. If this is in a landfill or a site out here someplace where actually the other barrel was dumped, could you detect that with a detector just going out and scanning the area, or if it was down deep you would never know it?

Mr. DAVIS. No, you would not know it, if it were buried in a shallow landfill and covered up. The only way you could possibly determine it would be to excavate it, and that would be not a very good thing to try to do.

Chairman GLENN. No, it wouldn't. Oh. Mr. Davis, did Region III receive an inquiry from the press or media concerning a report of a radioactive accident or spill at Wright-Pat prior to October 24th, 1986?

Mr. DAVIS. I was told this morning that apparently we did get an inquiry. I don't know the date.

Chairman GLENN. Does anyone have the date and what the response to that inquiry was?

Mr. DAVIS. I am told, Senator, that we are not sure of the date, but there was a request, my public-affairs officer believes it was about on the order of a week before the October 23rd notification that we got where we had a press inquiry as to whether or not there was a spill of radioactive material at Wright-Patterson Air Force base. I am told that our public-affairs person checked with some of our inspection people and they said they were not aware of it, and that was the response that was given to the person who made the inquiry.

Chairman GLENN. Did your responsible people know about this event, then, and didn't tell the press representative; or did they lie about it?

Mr. DAVIS. No. Well, I don't think so. In my prepared remarks I was going to cover a call that one of our licensing reviewers had from an Air Force person, I believe it was a Captain Donovan who called and asked for a listing of people who were licensed to handle americium in the Ohio area. That was on October 15th. That licensing reviewer brought that information to the attention of two first-line supervisors in the region, and it was stopped at that point. It was not brought up further into the organization, so we didn't follow up on it. Now, we did have that information, apparently. That was on October 15th.

Now, assuming, since we are not sure when this press inquiry came, if it were before October 15th, why——

Chairman GLENN. Can you check into that and give us an answer for the record?

[The information referred to follows:]

---

[10] See p. 169.

The following is an account of the press inquiries as recollected by Region III staff members. There is no Region III record of the inquiry.

The Region III Public Affairs Office received an inquiry from a broadcast news organization in Dayton, Ohio (radio or television) 1-2 weeks before Region III learned of the WPAFB americium-241 spill on October 23, 1986. The organization was inquiring whether Region III had any information about a spill at WPAFB. The Public Affairs Office staff inquired of the technical managers in the Region III Nuclear Materials Safety and Safeguards Branch whether they had any information on such an incident, and whether that was why a Region III inspector was recently onsite. The technical managers responded that they were not aware of any spill and the inspector was onsite in August 1986 to followup on an allegation concerning J.C. Haynes waste being transferred to WPAFB. The Public Affairs Office staff then informed the news organization that Region III had no knowledge of any reports of a spill at WPAFB.

Chairman GLENN. We are going to have to move on to another panel. Gentlemen, I appreciate this this morning, and let me say this: we are trying to get the facts of what happened. I know you, as well as we, want to make sure this kind of thing can't happen again, that we tighten up our procedure so no one is put in danger, military personnel on the base, civil service people on the base, people that visit the base, all bases across the country. Your mandate goes beyond just military bases.

We have worked in Washington for a long time trying to make this thing as foolproof as possible. Nothing is 100 per cent safe in life, but we have worked with some of you before in Washington, Mr. Hayes in particular here, on some of the questions we have had in the Committee.

So we will move along to our next panel, and thank you very much.

The next panel is an Air Force panel. If they will take their seats up here, please, Brigadier General Charles E. Fox, Vice-Commander, Ogden Air Logistics Center and former base commander here. Brigadier General Rufus DeHart, Director of Professional Affairs and Quality Assurance, Air Force Surgeon General's Office. Colonel David Wood, Secretary, Air Force Radioisotope Committee. Lieutenant Colonel John Swanson, Chief of Radiation Oncology and Medical Physics. Dr. John Ricci, Radiation Safety Officer at Wright Pat.

All of you are welcome this morning, and we appreciate your testimony. If you will stand, we will administer the oath, and each of you will answer in turn.

All right, do you solemnly swear that the testimony you are about to give is the truth, the whole truth and nothing but the truth? General Fox?

General FOX. I do.

Chairman GLENN. General DeHart?

General DEHART. I do.

Chairman GLENN. Colonel Wood?

Colonel Wood. I do.

Chairman GLENN. Colonel Swanson?

Lieutenant Colonel SWANSON. I do.

Chairman GLENN. Dr. Ricci?

Dr. RICCI. I do.

Chairman GLENN. OK, General Fox, I understand you are going to be spokesman for the group; is that correct?

General FOX. That's correct.

TESTIMONY OF BRIG. GEN. CHARLES E. FOX, JR., VICE COMMANDER, OGDEN AIR LOGISTICS CENTER,[11] ACCOMPANIED BY BRIG. GEN. RUFUS DeHART, DIRECTOR OF PROFESSIONAL AFFAIRS AND QUALITY ASSURANCE, AIR FORCE SURGEON GENERAL;[12] COL. DAVID WOOD, EXECUTIVE SECRETARY, AIR FORCE RADIOISOTOPE COMMITTEE; LT. COL. JOHN SWANSON, CHIEF OF RADIATION ONCOLOGY AND MEDICAL PHYSICS; JOHN RICCI, M.D., RADIATION SAFETY OFFICER; AND COL. STEPHEN F. KOLLAR, AIR BASE WING COMMANDER

General Fox. Thank you, Chairman Glenn.

Senator Glenn, Senator Metzenbaum, Congressman DeWine, Congressman Hall, Lieutenant Governor Leonard: I would like to submit a statement on behalf of the Air Force for the record, and I'd like to make some remarks at this time.

Chairman GLENN. The statement will be included in the record in full.

General Fox. I do appreciate the opportunity to discuss this incident and our response by Wright-Patterson Air Force Base personnel to this radioactive incident which occurred in Building 4060 during the month of September 1986.

I would like for you to know that our primary concern from the very outset of the notification to me of this incident was and still is the health and the welfare of citizens of Wright-Patterson Air Force Base and the surrounding communities.

I believe from the time that I took control of the situation on the 26th of September that the actions of the people responding to this most unusual incident were commendable, and I believe that our actions were praised even by the Nuclear Regulatory Commission, once we were notified of the incident, once the information got into the hands of the proper authorities at Wright-Patterson Air Force Base.

I am compelled to say that this incident was caused by the irresponsible actions of a few individuals. They acted irresponsibly, both inside and outside of that facility, and they withheld information, and they misled the investigation and recovery teams, and they endangered themselves and they endangered the lives of others who were working on the project.

Nevertheless, once we learned of the true nature of this hazard, we made the notifications, and we took the necessary actions to initiate an effective clean-up. I believe our actions were both responsive and responsible to the situation that we confronted, and we in no way attempted or sought to down-play or mask the nature of this incident.

Now I would like to discuss some concerns that the committee has asked us to address. Specifically I would like to discuss the health assessment, by the Air Force, of employees involved in the response and of the Boy Scouts, the allegedly down-play of this incident by the Air Force in its reporting of this matter, and the adequacy of the Radiological Inspection Program at Wright-Patterson Air Force Base.

---

[11] See p. 89 for General Fox's prepared statement.

[12] See p. 114 for General DeHart's prepared statement.

General DeHart will address the operation of the Radioisotope Committee and the issues raised concerning Secretary Weinberger's letter to Governor Celeste.

I want to begin by discussing the incident as it was reported to me on the 26th of September. On about early afternoon time frame of 26 September, Lieutenant Colonel John Swanson of the Wright-Pat Medical Center reported to me that there had been a release of some radioactive substance inside of Building 4060.

I immediately convened a response force to assess the situation and to determine the initial actions that we were going to take. I decided that we had to insure that the facility was under control and to maintain the safety of our people as our highest priority.

The response team initially went out to the facility on 26 September and took numerous readings. The readings around the facility were taken with instruments sensitive to low-gamma radiation, low-energy gamma radiation emitted by plutonium-239 and americium-241. We secured the area by taking the following actions:

We immediately determined if any contamination existed external to that building. We sealed the building with tape. We cordoned off the area and we restricted access to that area. We obtained Air Force Radiological Assessment Team support for decontamination operations and environmental monitoring, and we prepared suitable response plan for implementation. At the time that the incident occurred—and you almost have to put yourself back in that scenario somehow—we knew very little about what we were dealing with as far as the source was concerned. Lieutenant Colonel Swanson, again, a health physicist, a doctor, considered the material may have been generated some years ago, as we were discussing where in the world it may have come from, wracking our brains.

The material that Dr. Swanson, I believe, was referring to was a spill at AFIT in Area B of the base. With the limited knowledge that we had, I directed the staff to make the necessary notifications. And I did ask the question: Do we notify the Environmental Protection Agency? I was advised that if there had not been a release to the environment that no report was necessary. I was also advised that there was no reportable release to the environment from the facility, so that notice was not made.

We got a strong confirmation of that information when those readings were taken by the response force, and they brought the information back to me: "There has not been release to the environment."

Dr. Swanson notified the Radioisotope Committee at Brooks Air Force Base, who is the Air Force licenseholder for these materials. Radioisotope Committee responsibility was to notify the Nuclear Regulatory Commission. This was the basic reporting chain under our permit.

Very shortly after those discussions were held, I got confirmation from Dr. Swanson that the Nuclear Regulatory Commission had, indeed, been contacted. I got that confirmation from Dr. Swanson. We dispatched a team out to the site. Lieutenant Colonel Swanson and Mr. Vic Dunn, with the assistance of the base Disaster Response Force and the fire department, controlled the area. Lieuten-

ant Colonel Swanson used several instruments to check for radiation outside the building.

After checking the area and finding no significant level of external contamination, we proceeded to seal the building with duct tape. This operation was suspended for weather, and on Saturday, the next day, Lt. Col. Swanson returned to the building and checked again for contamination and none was found.

The response disaster force arrived about 10 o'clock that morning and checked the area round the building thoroughly for radiation, and I was again advised that no singificant levels were found. The sealing of the building continued until the weather forced them to stop around 1:00 p.m.

I would next like, if you don't mind, to tell you about some of the notifications that we made, because I think they are significant. On September the 26th, as soon as we got notifications of the incident, we developed and sent out a JOPREP JIFFY/BEELINE report to Headquarters, Air Force. That is a report that highlights that a significant event has taken place, in Air Force terms.

On 26 September we also notified the Radioisotope Committee, and we initiated the actions that were necessary to develop what is called a Faded Giant investigation on that date, an investigation that Air Force Logistics Command's Inspector General ultimately completed, and from 1 October to 18 November there were about 12 responses to inquiries by the news media.

I think it's also important that we discuss what I knew about Mr. Lewis and Mr. Haynes as of 1 October. I knew that the NRC had conducted a no notice inspection of Mr. Lewis in August of 1986 and had given him a clean bill of health. The NRC personnel had outbriefed Mr. Tom Shoup, who is the Deputy Base Civil Engineer, rather than me, and advised him of the allegations made by Haynes regarding Mr. Lewis, that they were without merit.

Now, I didn't take that outbrief, because I wasn't available. So Mr. Shoup took that outbrief. My schedule was packed. That was a no-notice inspection. We got good results from that briefing, and Mr. Shoup in turn advised me and remembers advising me, without mention of Mr. Haynes, that Mr. Lewis had been given a clean bill of health. That was his message back to me as a result of the outbrief. Mr. Haynes' name was not mentioned in Mr. Shoup's comments to me.

On September 22nd, Mr. Axelson of the NRC called Mr. Shoup to ask the Air Force to polygraph Mr. Lewis. That was the next contact. The only reason for this request was a vague feeling that Mr. Lewis had lied to them. Mr. Shoup advised me of this request, and I, in turn, discussed it with my legal staff and the OSI staff. They happened to be in the room at the time when Mr. Shoup broke into a meeting where we were talking about OSI issues.

Folks in that room, members of my staff, recommended that no polygraph should be done without NRC first providing some reason for doing so. So I told Mr. Shoup, "We need to have the FBI make a formal request to the OSI," and Mr. Shoup transmitted this to Mr. Axelson's secretary, according to Mr. Shoup.

We know of no mention of Mr. Haynes during these communications in that room when we were talking about a polygraph for Mr. Lewis.

On October the 1st the NRC called me to tell me that they were finished with their report and they were not pursuing the investigation any further of Mr. Lewis. Mr. Axelson did relay to me in that phone call that he still had reservations about Mr. Lewis's truthfulness.

To my knowledge, I had never seen nor spoken to Mr. Axelson in my life. Since I was absolutely convinced that the NRC was fully aware of our spill by then, because I had gotten confirmation from Dr. Swanson, that discussion did not enter our brief conversation because I don't ever remember discussing the spill with Mr. Axelson. The purpose of the call was to tell me that they were finished with their investigation on Mr. Lewis, they don't have any findings, but he did say, "I've got some reservations about that guy. There is just something not right."

Now, as a base commander I don't normally just carry on idle conversation with people I don't know on the phone. The NRC, had already—I was convinced—knew of the spill and were working their issues accordingly. At this point in time I had every reason to believe that those people who were monitoring the spill were fully informed through the Radioisotope Committee.

Also, at the time the calls were made, our response team believed that the source of release may have been this AFIT spill again or some kind of contamination product of plutonium. So I asked Mr. Axelson to please forward me a copy of that report, and I made some comment to him to the effect that I was going to continue looking into that case, and then I waited for that report to arrive, and I have been told that calls were made to ask where that report was. That report was dated around the 14th of October. I received it somewhere around the 20th or so, and as soon as I got it I looked at my vice-commander and said, "Call the OSI. I am very disappointed with this report. There is no detail in it and there is no reason to believe in this report that Mr. Lewis is innocent. The facts don't substantiate that he is innocent, so let's get on it."

I had a conversation on the 22nd of October with the OSI, and I mentioned to the OSI agent—and he has put this in a statement—I said, "Get together with the NRC and compare your information with our information that we have got going here at Wright-Pat and let's develop something here of substance. Let's aggressively pursue this case," that is, Mr. Lewis' involvement. I guess since I was distrustful of Mr. Lewis despite his sworn statement and being cleared by the NRC and because of the few details of the NRC report, I went ahead and made this direction to Colonel Kollar.

I honestly believe that the facts will show that I had no reason or intention to withhold any information from the NRC. I was convinced that they were fully informed after Dr. Swanson confirmed to me that the Radioisotope Committee had briefed the NRC on this subject.

I'd next like to address the health assessment issue that you requested. There were primarily two precautions taken to insure the health and safety of personnel involved in the clean-up effort. First, very comprehensive evaluations of the work environment outside of Building 4060 were conducted during and after all operations. These evaluations include air sampling, removable contami-

nation sampling, perimeter FIDLER surveys, personal dosimeters, and checkpoint monitoring of all personnel leaving the site.

Second, all personnel working in areas where contamination was present were given nasal swabs to determine if inhalation/ingestion had occurred. This sampling program was conducted to insure the adequacy of the personal protective equipment that they used. Positive nasal swabs triggered immediate lung counting at Mound Laboratory. Follow-up urine samples were used as an additional check of the adequacy of the protective measures that were taken. The nasal swabs of three individuals were positive out of more than 100 collected. These three positives were a result of the 6 October entry and were confined to the individuals present within the specially constructed inner containment that was within the building by the 6th of October when they made the second entry.

I would like now to discuss the Boy Scout incident, and it's an emotional one for me, because I am an Eagle Scout, and without going into detail and pounding on my chest, the Eagle Scout council in the local area dedicated their 1986 class to me, and I am very sensitive to those issues and very concerned. I can assure this Committee that if I had had any reservations about that decision that was made, I would not hesitate to have restricted that area, call in Boy Scouts and taken the maximum precautions.

Before the incident was reported to me, the deputy base environmental engineer, Mr. Dunn, accompanied by Lieutenant Vincent, both from our Med Center, surveyed the area of the camp with a radiation detector and took a soil sample. This is before I was advised that the incident had even occurred.

Once we learned that the initial team had gone to the Boy Scout area, I was appalled and very upset. I asked Lieutenant Colonel Swanson, Dr. Swanson, and Dr. Ricci why it would not be advisable to immediately call in the Boy Scouts and get physicals. The question was, was there any contamination in that area. So we immediately went out and checked. Lieutenant Colonel Swanson and Dr. Ricci surveyed the area thoroughly, using an extremely sensitive instrument, and not only checked the water spout where they washed their hands and the route from the truck to the water spout, but they walked all over that Scout area. To my mind, if there had been even the slightest detection of contamination, I would have called for maximum protection for our people.

Dr. Swanson and Dr. Ricci were convinced that there was no contamination in the area, and this decision went through the medical staff as people reviewed it on up the line and, in fact, the NRC, who has had this report for months and this information for months, I assume concurs with the decisions that were made in that area.

None of the areas showed any radiation levels above the natural background that you get and an additional soil sample was taken on the 20th of October, which, again, showed no detectable radiation. Nevertheless, several Boy Scout leaders and parents of Boy Scouts and even some of our employees have expressed concern over the potential for exposure. Since these people have those concerns, the Air Force has those concerns, and as a result, we have offered testing to those Boy Scouts and those base employees who have those concerns. We firmly believe that no person outside that

facility was exposed to or contaminated by any americium-241, and we are confident that any testing performed is going to confirm this.

I'd like to mention our radiation safety program. The correction of inventory and facility problems regarding radioactive materials continues at Wright-Patterson Air Force Base today. Recent inspections have revealed unsatisfactory conditions which have not received sufficient commitment to resources. Wright-Pat personnel are now working diligently to correct those problems. First, a new Wright-Patterson Air Force Base regulation has been written which assigns responsibilities and it details the operational requirements of the radiation safety program. This regulation, which is in coordination now, establishes a new system of base level permits to strictly control authorizations for radiation sources permitted for use or storage by all base organizations.

The regulation also sets specific policy for notification and reporting of accidents and incidents and specifies emergency procedures to be used. Formal notification procedures have been developed between Wright-Patterson Air Force Base and the Ohio Disaster Services Agency to cover any situation involving radiological incidents. A system of informal exchange of information with the Ohio Department of Radiological Health for activities of interest has already been implemented. Finally, a current inventory is being developed to provide a basis for effective conduct of the base radiation safety program.

Moreover, specific response procedures are being developed through coordination between the base Radiation Safety Officer, Base Safety and Disaster Preparedness. In addition, requirements for training, ordering and receiving procedures for radioactive material and radioactive waste inventory and disposal procedures have been included in the base regulation.

Yes, the program is unsatisfactory. The conditions that caused this have been identified to the appropriate staff agencies for correction. Temporary duty personnel have been brought in to Wright-Patterson Air Force Base to assist in the correction of problems requiring immediate attention. Contractor assistance has also been obtained to assistance in completing the inventories.

In conclusion, the Department of the Air Force and Wright-Patterson Air Force Base believe that the protection of human health and safety is of paramount importance. We are committed to correcting the problems at Wright-Patterson, and we are reviewing our efforts to ensure that all materials on Wright-Patterson Air Force Base are managed properly and in compliance with Air Force and Nuclear Regulatory Commission requirements.

I would at this time like to turn the microphone over to General DeHart for his comments.

Chairman GLENN. General DeHart?

General DEHART. Senator Glenn, Senator Metzenbaum, Congressman DeWine, other members of the Committee: I am pleased to appear before you to discuss the policies and responsibilities of the Air Force Radioisotope Committee.

I have prepared a detailed opening report which I would like to submit for the record and provide you here now a brief summary of these comments.

Chairman GLENN. It will be included in its entirety.

General DEHART. I am Brigadier General Rufus DeHart, Director of Professional Services, in the Office of the Surgeon General, Headquarters, Air Force. One of my responsibilities is the Chairman of the Air Force Radioisotope Committee. As Director of Professional Services, I am responsible for establishing Air Force policy and control of potential hazards to personnel from uses of ionizing radiation.

The Air Force Radioisotope Committee is an Air Staff level committee which provides administrative control of all radioactive material used in the Air Force except for nuclear reactors, nuclear weapons and components of those weapon systems.

Through the Air Force Master Materials License, issued by the Nuclear Regulatory Commission to the Air Force Radioisotope Committee on 26 June 1985, the NRC delegated to the Air Force authority to regulate use of NRC-controlled radioactive materials on Air Force installations. The Committee exercises administrative control to ensure that the receipt, possession, distribution, use, transfer and disposal of radioactive materials by Air Force organizations is in accordance with the Air Force Master License.

The Committee's full-time Secretariat Staff has three health physicists. The Executive Secretary is Colonel David Wood on my right. They review all routine requests from Air Force organizations for use of radioactive materials and issue permits to qualified users. These permits are the Air Force equivalent of an NRC license.

The Committee acts as a single point of Air Force contact with the NRC or Agreement States on all aspects of licensing. The Air Force conducts compliance inspections of its permittees equivalent to those that the NRC does. The Director of Medical Inspection, Air Force Inspection Center at Norton is responsible for those inspections. NRC conducts oversight inspections at selected Air Force installations independently of Air Force inspection teams, as well as an annual evaluation of Committee management of the Master Materials License. NRC inspectors also accompany Air Force inspectors at random to assess equivalency of Air Force inspections with NRC inspections.

Every significant incident or accident involving radioactive material is to be reported to Headquarters Air Force. Those involving NRC regulated materials are to be reported to the Executive Secretariat staff of the Air Force Radioisotope Committee and then, in turn, by that staff to the NRC following NRC regulations.

We experienced some significant difficulties concerning reporting requirements and procedures during the incidents at Wright-Patterson. Since the incident at Wright-Patterson, reporting policy has been clarified and re-emphasized by letters from both the Committee and the Surgeon General to all bases and their parent Major Air Commands and Separate Operating Agencies. These letters state that it is imperative that any incident—and I underline "any incident"—involving radioactive materials be immediately reported to appropriate base and higher headquarters authorities.

It's been made clear that if uncertainty exists about whether an event constitutes a reportable incident, it is to be reported and reported immediately. Further, the Radioisotope Committee must

have on file now written certification by the applicant for permits and a radiation safety officer that they have read, understand and will comply with reporting requirements for radioactive materials established in Air Force Regulation 161-16 and 127-4. These certifications are now on file for each permit that we have granted. The Committee Secretariat now has written operating instructions with a specific action checklist to be followed which provides expanded guidance on NRC reporting requirements to insure future errors will not be made by Secretariat Staff in executing NRC requirements.

Furthermore, the Air Force Inspector General has emphasized inspection of Radioisotope inventory and waste management Air Force-wide, using a detailed inspection checklist developed specifically for this area of concern. Qualified health physicists are also annually inspecting selected permittees with significant radiological activities to review storage and inventory procedures using the Air Force Inspector General check list. Also, our accountability will be strengthened by including periodic local audits by disinterested parties. These new procedures were discussed in a letter to headquarters NRC, Office of Inspection and Enforcement in March of this year.

In response to Governor Celeste's letter expressing deep concern that State officials were not notified of the incident, a specific agreement was developed between base and State officials regarding notification of the State of any future accidents, and the Air Force is committed to fulfilling its part of that agreement.

Additionally, Air Force-wide guidance is being incorporated in a revision to the regulation governing control of radioactive material to require notification of any State authorities in the event mishaps occur anywhere in the United States which involve actual or potential exposure populations or unplanned or accidental release of radioactive material into the environment.

Regarding questions surrounding draft versions of the letter of 20 January 1987 from Secretary of Defense Weinberger to Governor Celeste: [13] Headquarters Air Force was tasked to draft a response to Governor Celeste's letter of 19 November 1986 concerning the incident involving contamination at Wright-Pat. The Surgeon General's staff then requested a coordinated draft response from Headquarters AFLC and also from the Radioisotope Committee.

The first draft was forwarded from Headquarters AFLO to the Surgeon General's office on 1 December 1986. That draft was forwarded to the Legislative liaison, Air Force-type. They redrafted that letter and based on other Air Force Secretariat inputs and sent that letter to the office of the Secretary of Defense about 10 December 1986.

Due to the lack of information concerning contamination external to Building 4060, the Air Force Secretariat asked for more specific wording regarding possible contamination outside the storage building. Based on input from Headquarters AFLC concerning negative contamination surveys around the building, the Surgeon General's staff provided additional wording to Secretary of the Air

[13] See p. 136.

Force, and redrafted, the letter was submitted to DOD on 13 January 1987 in its final form for signature by Secretary Weinberger.

I might add—not on and in my notes—that I have read and reviewed all drafts of the letter that led to that letter, there at least eight that I have copies of, and the early versions, five of them, contain no reference to the quantify the amount of americium that was spilled inside the building. The final version referred to that amount as "negligible."

I, personally, would have trouble defending the term or reference to the amount spilled inside that building as "negligible." It clearly was a significant amount, caused significant contamination inside the building. The letter that was signed clearly indicated to the Governor that this was well controlled and that there was no threat to the environment.

The letter to Governor Celeste from the Secretary of the Air Force Aldridge on 2 March 1987 outlined steps that the Air Force was taking to improve our management of isotopes This letter was drafted in the office of the Secretary of the Air Force MIQ, with some input from the Surgeon General's Office.

The Department of the Air Force takes our responsibilities under the Master Material License very very seriously and recognizes the need to protect the health and safety of the American people. We will continue our long standing emphasis on regulatory compliance in our handling of radioactive materials.

And I would also like to add, before I finish, a footnote, and it makes me a little uncomfortable to say this, but it's clear, although I have just arrived recently in Washington and assumed my present duties, it is clear, after reading many documents about the incident at Wright-Pat, that if General Fox had had timely, good initial support from medical persons who were initially involved in that initial spill, then he wouldn't have had as much difficulty as he did, and I am a little embarrassed about that. That's all I've got, sir.

Chairman GLENN. Thank you. Any other testimony?

General FOX. No, sir, that's all of my comments.

Chairman GLENN. Thank you. In regard to your last statement there, General Fox, Mr. Shoup's notes of your September 22nd meeting indicates that he mentioned the J.C. Haynes' case to you. Is that not your recollection of the meeting?

General FOX. Senator Glenn, I have Mr. Shoup's statement here where he notes that you have, I believe, reflect Mr. Shoup's recollection of what the NRC told him, not necessarily what he told me. This recollection right here is what Mr. Shoup remembers telling me, and I think it's more correct to reflect Mr. Shoup's recollection of what exactly he told me. I would be glad to share some of this information with you.

Chairman GLENN. All right, fine. Will be glad to have it for the record here.

In one of his paragraphs here—and I read from his memo, "Memo For Record" entitled "Involvement in Project 4060–NRC Investigation of Mr. James Lewis, 3 November 87," this year—and he says in Paragraph 8,

I met with Colonel Fox, Colonel Matlock, Mr. Carey and a representative from SP, which I believe was either Lt. Col. Kinderman or Mr. Lyons, and reiterated the re-

quest of Mr. Axelson. We briefly discussed the understanding I had from the outbriefing of the NRC investigators and what little I knew of the handling of the J.C. Haynes case. Col. Fox did not believe he had any reason as yet to conduct a polygraph test on Mr. Lewis. Mr. Carey indicated that if the FBI were involved and a Wright-Patterson Air Force Base Civil Service employee were implicated, the FBI should be coordinating with the OSI for any follow-up.

And so on.

General Fox. Yes, sir.

Chairman GLENN. That is in his memo.

General Fox. Yes, sir. I need to share with you, then, his statement. On the clarification of exactly the details that he shared with us in that room, if you will permit me, sir.

Chairman GLENN. Go ahead.

General Fox. I'm reading from Mr. Shoup's statement:

In an effort to better understand the actions of people involved in the 4060 clean-up, the following observations are made.

The initial investigation which outbriefed me on 20 August 86 was conducted in a very light-hearted and friendly manner. The two individuals explained the allegations and their subsequent recommendation that all allegations be dropped in a very matter-of-fact manner. When I asked why they even came here and who made the allegations, they made light of the entire affair, saying that the allegations were made by a very "flaky guy from around Columbus, Ohio." Further, they stated that "If you want to read about the unbelievable things this guy did, they had a big article in the Columbus newspaper about him."

They further stated that J.C. Haynes had been convicted of lying to a Federal official so his credibility was very suspect. Considering the above, when I briefly discussed the outbrief with Colonel Fox, who had not been able to attend the meeting, I, too, placed little significance upon the whole affair, fully expecting an excellent report of our radiological material management program.

My conversation was very brief with Colonel Fox. I cannot recall giving him any detail other than to expect a clean bill of health. The entire matter was so insignificant to me that I did not even prepare a formal memo for record of the meeting. The only reason I retained my notes of the outbrief—and if you look at those notes, they are sketchy—was that the investigators did leave me their business cards, and I have a habit of keeping cards on my desk. I paper clipped my notes to the business cards and toss them in my lap drawer. It should be noted that Wright-Patterson receives numerous visits from GAO, EPA, AFAA, various IGs, GSA and occasionally the OSI. This particular visit from the NRC was not at all out of the ordinary.

Regarding the phone call from Mr. Axelson on the 22nd—

this is four days after the spill had occurred, and I was not aware of it yet—

I was shocked at the lack of formality that was being displayed by this individual. Having not received anything in writing announcing the initial investigation, nothing in writing regarding the outcome of the investigation and nothing but laudatory remarks from the investigators regarding our program and Mr. Lewis's records, here is an NRC official taking the conduct of a polygraph test so lightly that he expects we'll conduct one on an untarnished, as far as we were aware then, civilian employee.

Chairman GLENN. This what you are reading now, is this Mr. Shoup's statement? Is this a memo from him, or is this your statement or what?

General Fox. These statements here are Mr. Shoup's recollections of how he imparted information to me and the process that is going on in his mind. What you probably have is more of a formal note-taking document.

Chairman GLENN. It has, "Memo for the Record" by Mr. Shoup on 3 November. I'd like to get a copy of that.

General Fox. Yes, sir. OK.

Chairman GLENN. I'd like to read that, also. And what's the date on that one?

General FOX. November 20.

I recall telling Mr. Axelson that, "I don't know who you are or what your reasons are for wanting the test administered. As far as I know, you may be a guy down the hall playing a bad joke." I reiterated that I could not speak for the base commander but considering the personal assurances of the NRC investigator that the next thing we'd see was a clean bill of health, I could not imagine Colonel Fox administering a polygraph test without some kind of written justification, which we had done. Mr. Axelson then reluctantly stated in his words, "allegations were made to the FBI investigators in such a way that they strongly believed them to be true."

As I have stated in my 3 November memo, I assumed that this new information had been obtained since the 20 August outbrief. I stated I would provide information to Colonel Fox immediately.

Chairman GLENN. Let me interrupt just a moment here. And this other one was done right after the incident. The one you are quoting from was done yesterday, I believe; is that correct?

General FOX. That is correct.

Chairman GLENN. Did you have any discussion with Mr. Shoup about this memo before he refreshed his recollection here three weeks later?

General FOX. Sir, I believe if you look at the dates on that, it's November 3, 1987, not right after the incident.

Chairman GLENN. You are correct, November 3 is what it is.

General FOX. They are both in the month of November of this year. One is a formal presentation of notes; the other is his recollection of what he actually told me, what he fed in to my data bank.

This individual, by the way, in my opinion, is the sharpest civilian employee I have ever worked with or encountered. He is a GM-15, the Deputy Base Civil Engineer and an exceptionally sharp person.

Chairman GLENN. Did he come forward and volunteer this, or did you ask him to make another statement?

General FOX. I asked Mr. Shoup if he recollected what information he actually gave me, and he said he would put that down in a note. I said, "Because I am sitting here without a data bank on Mr. Haynes that evidently someone thinks I have, and I am unclear. I would like to know what you told me." And he said. "I will be glad to put it down." And he does have a good memory, and he is honest and he is credible and he doesn't work for me.

Late in the afternoon of the 22nd of September, after my phone call with Mr. Axelson, I hurried to Colonel Fox's office to meet with him, the JA, the OSI and the SPs. I did not take any of my notes from 20 August 1986 outbrief, nor had I prepared any new notes from the conversation with Mr. Axelson. When I explained that the NRC now wanted a polygraph administered to Mr. Lewis, I could not recall the name of the individual who had made the allegations (J.C. Haynes). I do not recall emphasizing that the material suspected to have been accepted by Mr. Lewis was americium-241.

Please note that by this time the spill was four days old, was still not known to anyone in attendance that we even had a spill. The OSI needed J.C. Haynes' name in order to follow up with the FBI. If I had brought it with me, I could have given the information to Mr. Carey.

Right there on the spot. He doesn't say "on the spot." He says,

I could have given the information to Mr. Carey. Instead, I called Mr. Carey's office and provided the name and information to one of his investigators immediately upon my return to the office.

On 26 September when I was called to the command post, the command section for an emergency meeting—I had no idea what the incident was about. When Lieutenant Colonel Swanson mentioned the word americium-"XYZ", I did not recognize the isotope number as the same mentioned in the NRC. I recall asking Lieutenant Colonel Swanson if the spill could be americium-ABC, to which he replied. "No." While the coincidence of hearing the same word "americium" so recently bothered me, Lieutenant Colonel Swanson continued to explain that the material could be a by-product of plutonium, could be from other wastes, such as smoke detectors. It was also mentioned that a spill of americium had occurred several years ago at the base lab, and the material may have come from that clean-up.

He further stated to my recollection that the instruments he had available were not sufficient to accurately describe just what material or how much was spilled. Again, from my November 3 memo——

That is in front of you, Senator——

Since the OSI was following up with the FBI and since Mr. Dunn, who was Mr. Lewis's supervisor and who had attended the NRC outbrief with me and who was intimately familiar with the spill——

By that time Mr. Dunn was familiar with that spill——

Including the events of the last day, was also hearing what I heard from Colonel Swanson, I did not ask any questions about the possible connection of the two.

I also doubt very much that Colonel Fox could make any connection, since the information I provided him from the outbrief was a short conversation indicating all's well, and the discussion in his office after Axelson's call centered mostly upon the appropriateness of conducting a polygraph test of Mr. Lewis, not details of the allegations, since the notes from the 20 August outbrief were still on my desk.

Lastly, the Disaster Preparedness Force meeting in Building 110, Area C Readiness Center on the 29th of September was attended by many people, including Mr. Jim Lewis. Mr. Lewis provided detailed commentary about what happened on the 18th of September, and the following days he was candid and forthright about the errors he made in backing out of the contaminated area. As a result of his apparent honesty regarding the spill and the fact that he, too, was being tested for possible contamination, my understanding was that this spill was unrelated to NRC allegations was further reenforced. I had no further involvement with the clean-up after that meeting. At no time did NRC provide me or to my knowledge any Wright-Patterson representative, any allegation in writing or any substantiation with which to strongly suspect Mr. Lewis was being untruthful. To the contrary, the investigators, who were the only personal contact that the base had with the NRC prior to the spill, down-played the allegations due to the apparent instability and truthfulness of Mr. J.C. Haynes.

Lastly, not until four days after the spill did the NRC, Mr. Axelson, inform me that we had anything but a complete clean bill of health in this matter, that the allegations merited the same validity more than 30 days earlier when the investigators visited the base. Had the NRC openly and formally presented us with the evidence they had as early as 20 August, the entire incident could have been averted or its impact greatly reduced.

Chairman GLENN. OK, can we have a copy of that for the record?

General Fox. Yes, Senator.

Chairman GLENN. We'd like to have that to include in the record.[14]

Just one other comment here before I pass this along. During my opening statement I referred to finding a recent inspection which indicated lack of an—and I quote—"aggressive program to identify and dispose of excess materials as radioactive waste." This is recent, because the inspection was between 20 September and the 1st of October. And there were a number of very specific deficiencies found.

It appears that the same permit procedure which allowed the nearly two curies of americium to get on the base in the 1970s are

[14] See p. 234.

still in effect. Records of most radioactive materials on base have not been updated for three years. Accountability and location for at least one neutron source containing plutonium cannot be conclusively established. The containers used to store radioactive materials have illegible or incomplete labeling. Many sources have been on base for more than 20 years and have no readily identifiable use. This is a year after all this happened. This is a year later.

General Fox. Yes, sir.

Chairman GLENN. What does it take to move somebody?

Dr. RICCI. Sir, perhaps I could address that question as the current base Radiation Safety Officer.

Chairman GLENN. Good.

Dr. RICCI. After I was appointed as the base Radiation Safety Officer to replace Mr. Lewis, I functioned both as the medical center RSO and the base RSO for some time, about two or three months. When it was obvious I couldn't do both jobs simultaneously, I resigned as medical center RSO and devoted full time to the base function. That was on the 1st of February at the beginning of 1987. Starting at that time it was my understanding that what really the program needed was two things. First of all, it needed someone to establish a credible program because of the fact Mr. Lewis's credibility had fallen in to serious doubt, and, secondly, it also needed a foundation on which to be built, because the previous radiation safety program was rather haphazard and loosely worked.

So what I did was I started writing a base regulation which I believe General Fox mentioned in his opening statement. That regulation is a rather extensive regulation, including much detail on how the new program would be implemented, including areas such as inventories, order and receiving procedures, (radioactive) materials (radioactive), waste-handling, training of personnel, the whole gamut of things that needed to be done to boost the radiation safety program to a position where it would be in compliance with NRC regulations, as well as Air Force regulations.

That took some time, and during that time I was also running the program on a day-to-day basis, and essentially as was mentioned in two paragraphs in the IG report, one of the serious problems facing that program was staffing. I believe it was mentioned two separate times, and what we did was we accomplished what we could under the limited circumstances that we had. It was our intention to request additional staffing, and at that time to implement that program fully.

At no time did we feel that anything was occurring at Wright-Patterson Air Force Base that was posing an immediate hazard to personnel or the environment. We felt that we had everything pretty much under control. The items that are mentioned in the IG inspection are correct. There are small research sources and research inventories that are not properly labeled. There are, in fact, I accompanied the IG inspection on the inspection tour, and we discovered these items together. However, at no time were any of these items thought to be an immediate hazard to anyone. It was a question of basically poor housekeeping, poor record-keeping on the part of the users. It was identified as a problem, and it was addressed, as General Fox mentioned, we brought TDY personnel in

to assist us in creating a new inventory, a basis upon which to start a new program.

In addition, we already had a contractor on site, Chem Nuclear Systems, Incorporated, which was handling the dismantlement of Building 4060. They were requested to also assist us in repackaging and shipping all radioactive waste at Wright-Patterson, so that the procedure has already begun to accumulate all of the radioactive waste that we have at Wright-Patterson so that it can be repackaged and shipped so that Wright-Patterson will no longer have any radioactive waste left over from the prior administration, that we will begin a new system essentially beginning at this time.

All of these actions have been taken. It is mentioned in the inspection that numerous deficiencies were identified by the current RSO and the only thing that needed to be done was to implement the new program and that is exactly where we are now trying to implement the new program.

Senator METZENBAUM. General Fox, how long were you in charge of the base?

General Fox. I became the wing commander in June of 1984, sir.

Senator METZENBAUM. And you gave it up when, or you were reassigned when?

General Fox. In April of 1987, but I left earlier than that, but went off to various schools during the process of the clean-up.

Senator METZENBAUM. You testified about a half hour, we didn't interrupt you. What's the main thrust of what your position is here this morning? I am not clear on it.

General Fox. I believe our position is this morning that we had an irresponsible incident, irresponsible because of the actions of a few base employees that occurred, did not tell the base officials about it, neither the people in their chain of command in the medical hospital. Normally—and that once we were notified of this incident, we acted very professionally. We did the best we could. We had a very conscientious group.

I believe there's over 200 people involved in this cleanup that we ought to pin medals on. I would be very disturbed if that drum had ended up in some Ohio town or this irresponsible action had occurred in some other part of Ohio. I think the fact that it ended up on our base may be Godsent. Of course, it's terrible for me and terrible for the people of this base but probably for the State of Ohio, with the professionals that we had in Dr. Ricci and Dr. Swanson and the response team, that we pulled together to face an unknown and the job that we did—the drum is better off at Wright-Pat. Mistakes were made, by the way, but it was a commendable effort in cleaning up this mess.

Senator METZENBAUM. General, when did you learn about the transcript?

General Fox. You're referring to the transcript of the tape. I have not seen the tape. I have not read the excerpts from the tape, but my recollection of my learning about that was somewhere in the late December–January time frame, I don't have that fact off the top of my head.

Senator METZENBAUM. Didn't you ask to see it?

General Fox. Did I ask to see the tape?

Senator METZENBAUM. Yes. Did you order it to be brought to you?

General FOX. I was informed of the contents of the tape. No, I did not see the tape, I did not listen to the tape.

Senator METZENBAUM. You didn't think it was your responsibility to hear a tape that talks about a cover-up, talks about holding back information? You didn't think that that was a responsibility of yours to obtain that tape?

General FOX. Sir, my understanding is that that tape was part of the OSI investigation, and when I got the results of that OSI investigation I would be able to read the contents of that. I did not listen to the tape.

Senator METZENBAUM. Well, you know, you say you did everything possible. The tape is unbelievable.

General FOX. Sir, at the same time—as I recall, and I have not thought about this issue for a long time, and I have been away from the base for a while, but as I recall that tape and the information in it and the results of what was going to happen from that tape were in a jurisdictional mode, disciplinary action was going to be taken, action was going to be taken against those individuals, both by their commander in the hospital and maybe even criminal charges, etc. As for Colonel Moody, I coordinated on a letter where that particular group involved in the tape would perform no more duties as demanded by the NRC.

Senator METZENBAUM. General Fox, the whole thrust of your position here is that you did everything possible. The tape is available; my people get it, Senator Glenn's people get it, you don't get it. Americium got on the base, apparently sat there for 10 years, you did not know about it.

General FOX. That's right. May I make a statement about the tape again, sir? As I sit here and recall a brand new subject, I haven't thought about for a while. The actions of a tape involving those irresponsible individuals are going to be dealt with by commanders and supervisors. Lieutenant Colonel Moody does not work for me, he is not in my chain of command. He is not a member of the 2750 Air Base wing, and I was briefed on the results of that tape that some very unprofessional comments, etc., etc., were made on that tape and a very light-hearted effort was taking place in that meeting room, etc., and I logged that in my data bank, but I did not listen to the tape. It didn't have any bearing on the actions of the Response force, because the tape was discovered too late—well into our cleanup effort.

Senator METZENBAUM. It sure did have a bearing. It was evidence of an absolute cover-up while on your watch, General, and whether or not you are talking about disciplinary action or not, the fact is these people talked about holding back the information, secreting the information, keeping it from the public, and you're the general in charge, and you don't see fit to even see or hear the tape.

Now, my understanding, there are two different transcripts of the tape that the military had, one separate transcript that the NRC has, and a little bit different, but the fact is there's dynamite in the tape and the General who is supposedly concerned about what is going on in his base says, "They are being taken care of. It's just a matter of discipline." General, I have trouble.

General Fox. Sir, I got the results of the tape.

Senator METZENBAUM. Why not get the tape? It's not that big; it takes three minutes to read the thing. One employee on your watch was solely responsible for the storage and disposal of radiological materials. Was there no system of oversight, no checks on his activities?

General Fox. Mr. Lewis's activities. Mr. Lewis was the base Radiation Safety Officer. The person who was matrixed over to me from the hospital, he is a hospital employee. We depend on his expertise to run our program.

Senator METZENBAUM. And no checking.

Colonel WOOD. Sir, may I address something to that, that there is a check on Mr. Lewis's activities under the license that was issued at the time through the NRC's inspection, and there was a general oversight of his activities through management inspections of the general radiation protection program conducted by the Air Force, and this information would flow back to his respective commander.

Senator METZENBAUM. While there were no checks and balances—no check on this man. Do you still have the same procedures?

Colonel WOOL. We have in draft some very specific changes and requirements for those kinds of waste storage sites that will not allow a single individual to be involved in the activity thereof. It will take at least two people to access it, and there are specific requirements being generated for recordkeeping for that facility. This is in a regulation that has been drafted and is in the initial stages of coordination with the Air Staff.

Senator METZENBAUM. General Fox, why did the Air Force personnel characterize the spill as minor when they reported it to the NRC's Region IV office?

Colonel WOOD. Sir, again, may I address that one, because that is not—this is an activity that Colonel Fox would not be responsible for. The base fulfilled their responsibilities in notifying the Radioisotope Committee. My staff, at the time it received that information, made errors in application of NRC reporting requirements. There was also an error made in internal communications within the office that resulted in NRC receiving perhaps less information than was available to us at the time, and they readily recognized this, and we have taken actions again to insure this does not recur.

We have a written operating instruction developed in consultation with NRC about their reporting the issue of sensitivity rather than just the specific letter of the requirements. We have addressed that in our operating instruction, and I will tell you that we have carried out that operating instruction with the NRC.

Senator METZENBAUM. Doesn't the NRC have specific regulations requiring you to immediately report an incident?

Colonel WOOD. Yes, it does. Those regulations are 20.403, 20.405.

Senator METZENBAUM. How long did you wait until you reported this incident?

Colonel WOOD. We did not wait to report an incident. What we did was we called the NRC at the time that the Radioisotope Committee was advised. We did not declare a formal report, we did not apply the requirements for the regulations appropriate to say to the NRC at that time, "This is a formal report thereof." We did tell

them, "We have an incident at Wright-Patterson. It involved a spilled material. We do not have a detailed description and understanding at this point of what it is, and we will tell you more, and we will stay in contact with you," and we did do that. Regrettably, we did in hindsight in discussion with NRC, we recognize full well the errors we made in applying their regulations.

Senator METZENBAUM. At the time—I think there were 8 days delay before you reported the spill?

Colonel WOOD. There were no delays when at least informal conversation between the RIC, Radioisotope Committee, and the NRC. There was an 8-day delay at the base from the time the initial spill was made and the individuals involved therein told any of the senior base officials so that notification could be made to us.

Senator METZENBAUM. Did you consider this a significant accident?

Colonel WOOD. Internally, yes.

Senator METZENBAUM. You know, Governor Celeste wrote a letter to Secretary Weinberger in November 1986, objecting to the delay and lack of notification to the State about the spill. Secretary Weinberger didn't write back until late January 1987, and in his response he down-played the severity of the spill. He didn't even mention that a second spill had occurred on October 6, 1986. I have to assume the Secretary of Defense didn't know the facts, but somebody from this base had to notify him and advise him. Who notified him and why did he underplay the event in response to Governor Celeste, and who was in contact with the Secretary of Defense?

General DEHART. As I said before, the information I have right now is that there were a number of drafts that were put together during that time frame. I wasn't in the Surgeon General's office at that time. However, there was input from the Radioisotope Committee, there was input from Air Force Logistics Command Surgeon's office, there was input from the Air Force Legislative Liaison, there was input from the Surgeon General's office. All of these people had a part in putting together the initial draft, of which there was about five or six.

Senator METZENBAUM. Mainly, they were all people from your team.

General DEHART. Not all. Some from LOG command and also some from the Secretary of the Air Force's level.

Senator METZENBAUM. Presentation was made here this morning that this was a mistake, but we have done a lot to clean it up. On November 12th, 1987, the Governor of the State of Ohio wrote a three-page letter to Casper Weinberger. I will just read parts of it.

A March 2nd, 1987, letter from the Secretary of the Air Force indicated that state and local officials should receive prompt notification of radiological events and of all response efforts beyond those provided by the Base Disaster Response Team. The recent event that caused the contamination of Building 4060 clearly fall within that category, but the commitment to full notification was not observed.

Another item,

A second container of americium is unaccounted for and may be on the base. I suggest that the Air Force launch a vigorous investigation for this missing material. Please let me know the results.

Another item; this one is probably the most critical:

The Ohio Environmental Protection Agency has addressed several environmental problems at the air base over a number of years. These problems include the contamination of 17 drinking water wells with a variety of toxic substances, some 33 former waste disposal sites which may be contributing to groundwater contamination.

Ohio EPA issued orders to the base in July, 1987 requiring a comprehensive study which would lead to the eventual clean-up of these problems. The Air Force has appealed these problems.

Just last week another incident took place that provides further evidence of the Air Force apparent lack of concern and reluctance to work with Ohio to resolve environmental problems. The Air Force was excavating a portion of landfill No. 4 to allow for the extension of a major freeway. Ohio EPA raised several concerns and made recommendations concerning this project. Ohio EPA required the base to take samples of the waste material, have the samples analyzed by a competent lab and submit the results to Ohio EPA for review before excavating.

Last week I learned that hundreds of truckloads of material were removed from the area before Ohio EPA received the samples and had an opportunity to review the sample results. Consequently, solid waste was improperly sent to a base land fill permitted to receive only demolition waste.

It goes on to say:

Failure to follow this essential regulation was a blatant attempt to bypass the Ohio law. I request that you contact the base commander immediately and instruct him to begin following this requirement at once. The Wright-Patterson Air Force Base and its thousands of military and civilian employees is larger than many Ohio communities. Most of these communities understand the need to protect their residents from the potential health threats posed by serious pollution problems. I expect no less from Wright-Patterson.

It's about as strong a letter as you could possibly write, and it would indicate that all of these improvements may not be in effect as of this moment.

I have a question of you, Dr. Ricci. I'd like to talk to you about the second spill that occurred on October 6th and your ingestion of americium. You went into the building where the americium had been spilled to clean it up. Can you describe what happened after that?

Dr. RICCI. On the 6th of October, I and two other individuals entered the facility to locate a radioactive source that was interfering with environmental monitoring around the building. We believed it to be in a certain drum. We opened that drum, and instead it contained americium-241. We did not have any indication that it was the drum containing americium-241. It was located amidst a group of other drums that looked exactly identical.

We had had, we believed, prior indication that the drum containing the americium was, in fact a red drum. We strictly avoided that particular drum. As it turns out, it was not the red drum but the drum that we opened that contained the americium-241.

The contamination was mainly confined to the inner containment that had been constructed inside of Building 4060. However, there was extensive contamination on the individuals involved in that team, and the three members were sent to Mound Laboratories for lung counting, and I was the only one who had ingested radioactive material, the only one to have been confirmed to have ingested radioactive material at that time.

Senator METZENBAUM. Isn't it a fact that there are, as I pointed out earlier reading that report, that there are many other barrels that could be opened and could provide the same kind of contamination?

Dr. RICCI. You mean at present, Senator.

Senator METZENBAUM. At present.

Dr. RICCI. We had at least two drums that we are not certain of what the contents are. We have informed the contractor who is assisting us with the repackaging radioactive waste, and we have established the same set of controls that we used for the final repackaging operation in Project 4060. We had established a sealed containment with a glove box in one of the buildings at Wright-Patterson. It is our intent, under the direction of the contractor's personnel, to open drums at Wright-Patterson in this enclosed containment inside of the glove box to determine the contents. However, we do plan to monitor the drums externally before we open them to see if there is any indication at all they may contain americium-241. If they do, then we will certainly hesitate to open them up. However, if there is no indication, we will go ahead and repackage the waste in the drums in that facility.

Senator METZENBAUM. I have some other questions, but my time has expired.

Chairman GLENN. Congressman DeWine?

Mr. DEWINE. I have no questions.

Chairman GLENN. Continue, then Senator Metzenbaum.

Senator METZENBAUM. Tell us about the other radioactive materials you store and use at Wright-Patterson, and where do you send your radioactive materials for disposal?

Dr. RICCI. The waste from the building 4060 clean-up was sent to the Hanford burial site at Richland, Washington. The Air Force has a centralized radioactive disposal office which contracts with a company such as Chem Nuclear Systems Incorporated, to dispose of radioactive waste at approved commercial burial sites.

The amount of material that we have at Wright-Patterson is, of course, possessed under a USAF radioactive material permit authorized under the broad-scope NRC license issued to the Radioisotope Committee. We have several organizations on base that do use radioisotopes in a research capacity, as well as the medical center which uses it for patient care.

Senator METZENBAUM. My last comment is as Senator Glenn earlier noted, the Health Services Management inspection report which summarized inspections made just a few weeks ago indicates that even now Wright-Patterson Air Force personnel still haven't learned their lesson, and I quote from that report:

"The presence of many old, unused and/or identifiable sources indicated the lack of an aggressive program to identify and dispose of excess materials as radioactive waste."

One year later you get this kind of report. It's very difficult to accept the representations of those of you who are here from Wright-Patterson. It's disturbing and, frankly, quite shocking as well. We expect more.

General FOX. Senator Metzenbaum, can I comment on that?

Senator METZENBAUM. Please, General.

General FOX. Is it proper for the present base commander to comment on Governor Celeste's letter and your comments that you just made?

Senator METZENBAUM. Certainly. I am very happy to have him.

General FOX. Could we swear him in?

Senator METZENBAUM. Is he here?

General Fox. He is right behind me, sir.

Chairman GLENN. Do you swear the testimony you are about to give is the truth, the whole truth and nothing but the truth.

Colonel KOLLAR. I do.

Chairman GLENN. State your full name to the court reporter.

General Fox. Senator Metzenbaum, before Colonel Kollar begins I just want to give you a note that has been passed to me to, reflect on my memory back on the tapes, if I can add that for the record.

Senator METZENBAUM. Please do.

General Fox. I have been advised at that time and it may still be going on; I have been away from the base for a while—we were prohibited by the U.S. Attorney from doing anything in that area. We cannot use any of the evidence of the tape, so forth, against those individuals, because we are prohibited by the U.S. Attorney from doing anything in that case.

And I understand your point in bringing that out, but I got the information on the tape. Again, they're not in my command chain, but we did get this notice from the U.S. Attorney.

Senator METZENBAUM. Is that a formal notice? What is that? What is that piece of paper you are holding.

General Fox. It's a piece of paper from my advisers.

I guess what has been passed forward is a letter from the U.S. Attorney who advised us not to take—we were prohibited from doing anything in this area.

Senator METZENBAUM. Where is that letter?

Major VAN ZANDT. I just passed that to Senator Glenn's staff.

[Discussion off the record. Short recess.]

Chairman GLENN. We will reconvene. Senator Metzenbaum was still in midstream on a question there.

Senator METZENBAUM. I wanted to talk with you about these letters from the U.S. Attorney, because they don't actually say that that evidence is not relevant to your activities and that you can't use it. All they say is that, "We expect to be in a position to advise you shortly after the first of the year whether or not you can proceed administratively against Mr. Lewis using the materials you submitted to us without compromising any prosecution."

And then they say in another letter—well, in an earlier letter, in April they said, "In particular, I specifically request that no evidence acquired during that investigation be used in any administrative proceeding until the conclusion of the aforesaid criminal prosecution."

Now, I'm not concerned about Mr. Lewis as an employee, I'm concerned about the substance of these two transcripts which involve cover-up, involve more than these that had only to do with Mr. Lewis, but it had to do with the conduct that was being carried out on your base, and the fact that you didn't see fit to even read the things, because you would get the whole flavor of what had occurred, and I have to say to you, General, that——

General Fox. Senator Metzenbaum, I would like to submit a document to you for the record on that issue and I think will clarify that issue.

Senator METZENBAUM. What is that document?

General Fox. I would like to draw that up with counsel and show you what we were going through at that time, what that document meant to us.

Senator METZENBAUM. What that document meant to you?

General Fox. The fact that we had restrictions with the U.S. Attorney on about how we were handling evidence in the case.

Senator METZENBAUM. General Fox, you and I are on different wave lengths. I am not talking about how you handled Mr. Lewis's case. That is a separate issue. I am talking about the issue of covering up the facts that this base had been contaminated, that there was radioactive waste on the base, that it's there and nothing is done about it. As a matter of fact one other detail. When we were on the bus today and we were talking about the storage van that's on the base, at the moment my recollection is that one of you said something to the effect that there is no more environmental contamination in that storage van than you would find in eight or ten smoke detectors.

Lieutenant Colonel SWANSON. Yes, sir, that was my comment.

Senator METZENBAUM. If that is all there is, where is the rest of it? Because we know they use it in smoke detectors.

Lieutenant Colonel SWANSON. Senator, we shipped the majority of the material that contaminated the building to Hanford, Washington, on November 26th, 1986.

Senator METZENBAUM. To where?

Lieutenant Colonel SWANSON. Hanford, Washington, an authorized low-level waste disposal site. The single drum that we ended up having from Mr. Haynes, the one that contains approximately 3 curies, not 2 but approximately 3 curies of americium-241 is still present at Wright-Patterson. It exists in a locked, alarmed vault. No single individual can go to that vault, and any presence at that vault requires the presence of someone with a sidearm.

Senator METZENBAUM. Now then, what's in this blue van that's sitting there?

Lieutenant Colonel SWANSON. Yes, sir, that is the building itself. We took the building apart very carefully over about a month-and-a-half period of time and put it in that box and then welded the box shut. That contains—the building itself at that point contained approximately 110 microcuries of americium-241. That is roughly the equivalent, if you assume 8-microcurie smoke detectors, of 12 to 15 smoke detectors.

Senator METZENBAUM. So then you got three curies in the vault.

Lieutenant Colonel SWANSON. Yes, sir, and we are——

Senator METZENBAUM. Where is the rest of it? What happened to the rest of it?

Lieutenant Colonel SWANSON. The rest of the material that was in the building that was contaminated, there were many, many barrels, sources, pallets and the insulation on the interior of the building, all of the materials used in the clean-up were properly disposed of.

Senator METZENBAUM. How?

Lieutenant Colonel SWANSON. By shipment to the authorized low-level waste disposal site at Hanford, Washington, on the 26th of November, 1986, by Chem Nuclear Systems, Incorporated.

Senator METZENBAUM. How many curies were shipped?

Lieutenant Colonel SWANSON. Approximately 50 to 100 millicuries would be my estimate. Remember, sir, we had 9 large boxes, and to my recollection 80-some drums of waste generated in the clean-up process itself, two semi-trailers' worth.

Senator METZENBAUM. Originally we were told that the jeweler, Mr. Haynes, had 19 curies of radioactive waste.

Lieutenant Colonel SWANSON. Yes, sir. That's what he had picked up from Oak Ridge.

Senator METZENBAUM. How many of those have we now been able to account for?

Lieutenant Colonel SWANSON. It is my understanding that if you include the 3 curies that we presently have at Wright-Patterson, add to that the approximately hundred millicuries that was buried at Hanford, Washington, and then add the approximately 110 microcuries, each time removing a thousand——

Chairman GLENN. Is Hanford low-level waste. Is that the proper disposal site? This is transuranic waste.

Lieutenant Colonel SWANSON. Transuranic, yes, sir. We were authorized to dispose of transuranics at levels below 10 nanocuries per gram. In point of fact, all of our waste that we shipped was below 10 nanocuries per gram, with the exception of two drums, one which was 23 nanocuries per gram, which will go out with the present shipment and the 3-curie barrel.

Senator METZENBAUM. I still don't know what's happened to the rest of the curies.

Lieutenant Colonel SWANSON. The NRC cleaned up the rest of the material in Newark in 1985. I guess it was. They can probably answer it better than I can, but it was Mound Laboratories in Dayton handled the processing of that material and was responsible for shipping it to a high-level waste disposal facility.

Senator METZENBAUM. Colonel, you are now in charge, right?

Colonel KOLLAR. I am now the air base wing commander, Yes, Senator.

Senator METZENBAUM. I had asked the nuclear regulatory people whether or not there would be a check made with respect to all of those barrels that are presently on the premises that are either illegibly marked or not marked at all, and they said that there would be. Do we have your assurance that that will be done?

Colonel KOLLAR. Senator, I welcome the NRC to come and check those barrels and our repackaging and sorting process which we already have a contractor on board to do and also to observe the final shipment of that material when we are completed with that process.

Senator METZENBAUM. Is your answer "Yes."

Colonel KOLLAR. Yes, Senator. Absolutely, yes.

Lieutenant Colonel SWANSON. May I make a comment relative to that, Senator?

Senator METZENBAUM. Yes, Colonel Swanson.

Lieutenant Colonel SWANSON. In reprocessing the approximately 30 drums of waste that existed in Building 4060 after we had opened up the drum the second time on October the 6th and assumed for a while that we had not one but possibly two or possibly 20-some drums of americium in that building, we established what we feel to be an extremely effective procedure for opening up un-

known drums and checking the waste inside. We did that. We are prepared to do that for the two drums that we presently have at Wright-Patterson but would not do that unless we were under the close scrutiny of the NRC and the State of Ohio.

Senator METZENBAUM. My time has expired. Thank you.

Chairman GLENN. Thank you. Congressman DeWine?

Mr. DEWINE. Thank you. Colonel Kollar, when could we expect that repackaging and shipment to be completed?

Colonel KOLLAR. Congressman, I expect that to begin in approximately two weeks and to take about two weeks to execute.

Mr. DEWINE. What has delayed you from actually starting that?

Lieutenant Colonel SWANSON. May I make some comments?

We were using our defense contractor to take down the building, building 4060. That took a couple of months. When we realized via the IG inspection that you made note of that we had a significant problem with other waste, we wrote an addendum onto that contract to retain the contractor to do this job. We also had ordered a special, very sensitive spectrometer that would allow us to identify the waste without opening up any barrels. We have those spectrometers available to us now.

Mr. DEWINE. So, in summary, within a month we could expect that to be all completed?

Lieutenant Colonel SWANSON. Well, as soon as Dr. Ricci and I can get back to it, yes, sir.

Mr. DEWINE. It is my understanding, also, that you have instituted a procedure by which when there is new waste generated on the base, it is my understanding you don't generate much, but when you do generate it, that this will periodically now on a regular basis be taken away from the base; is that correct?

Lieutenant Colonel SWANSON. Not only that, sir, but it will remain under the control of the generator. One of the problems, of course, in accumulating large amounts of waste in a building out in a munitions area is that you lose the corporate memory. If you lose the inventory and then lose the corporate memory, you have problems. If you retain the generated waste under the individual who is generating it, make them responsible for it and then double-check their inventory as it's accumulated, you should remove some of those problems.

Mr. DEWINE. It is my understanding that when the clean-up took place one of the individuals who was involved in the clean-up actually went home, went to Fairborn, went to his home in Fairborn, changed clothes, took a shower, shampooed his hair a number of times, et cetera. I assume that you have checked that house; is that correct?

Lieutenant Colonel SWANSON. Yes, sir, that house has been checked, the shower has been checked, the washing machine has been checked, the individual has been checked, the truck that took him there has been checked. That particular individual had very, very minor level of contamination existing in one spot at the back of his head where he had taken a contaminated glove and tried to loosen the strap on his face mask.

Mr. DEWINE. Now, I understand that you have had some contact with the State of Ohio, and there is agreement that has been reached between you and the State about how to handle similar

circumstances in the future. Let me give you a specific, though. What would you anticipate you at the base doing if this same incident occurred, which we certainly hope it does not, but if an individual leaves the base unauthorized, has some radioactivity on him or her and goes somewhere out into the community off the base? I guess the concern is: will local officials be notified? Will the State be notified.

Colonel KOLLAR. Congressman, let me begin, since in a case like that I would be the person forming the disaster response force. I have signed a letter to the Governor assuring him that I will notify his Disaster Services Agency in a case like that when I have formed the disaster response force in a radiological-related event, and I will personally insure that that is done and that is also institutionalized into our check list and procedures. As far as the rest of the scenario that you paint, if you would ask for a detailed treatment of that, I would want to submit that for the record, because that is a rather complex problem that you pose that took us a year to clean up in this case.

Mr. DEWINE. I guess the concern would be to make sure that the local community, whoever might be involved, is someway informed. Is what you are telling me that that would come through the State, then? Would that be the procedure, you would notify disaster people in the State, they would then go back to the local community.

Colonel KOLLAR. Yes, it would be a dual-pronged effort. My first and immediate notifications would include the state disaster-preparedness organizations.

Mr. DEWINE. I had a specific constituent inquiry concerning Bass Lake. Kids were out there on the lake, families concerned about that. Can you give us any assurance that you have checked the lake out and that area? I notice this morning it was fairly close.

Lieutenant Colonel SWANSON. Yes, sir, I can. As you know, we did continuous measurements throughout the process, but in addition to that, Oak Ridge and the Air Force took soil samples throughout the area. The only positive soil samples were in an area very close to the building in the direction of Bass Lake, as we have discussed. The level of americium in those soil samples, the maximum level, as I recall, was approximately 2.6 picocuries per gram of soil. EPA's soil screening limit is 20 picocuries per gram. That is the only contamination that we ever detected outside of the building that we didn't have control of. Obviously, we took material in and out, but we had it under very careful scrutiny.

Mr. DEWINE. Is that close to the lake or towards the lake?

Lieutenant Colonel SWANSON. No, that is towards the lake but it's very close to the building. It is certainly well within the perimeter fence of the munitions area. We did, however, test Bass Lake, took water samples of Bass Lake. Those water samples were negative.

Mr. DEWINE. Thank you. Thank you, Mr. Chairman.

Chairman GLENN. Thank you. This is sort of an aside for you. The staff discovered a shipping log which is from Wright-Pat to Barnwell, South Carolina, record indicates shipment made sometime in August 1977 that appears to be the last time, I guess, that anything was shipped out.

Lieutenant Colonel SWANSON. That's correct, Senator.

Chairman GLENN. And the manifest indicates about 3 curies or a little over that of americium-241. That's a sizable batch. Is there any possibility that could be the missing amount?

Lieutenant Colonel SWANSON. Given the scenario, sir, anything is possible, as we all know. That is probably americium beryllium sources or other—we'd have to look at it. But there are other americium sealed sources that might have been included in that shipment.

Chairman GLENN. There was a whole list of things that are on the inventory at Wright-Pat in this thing. The first thing was "Request for Shipping Instructions" in July 1977. It has a list of, I guess this would be probably 30 different things here that might be—[interrupted by staff member conferring].

How much is the base authorized to have of sealed americium?

Dr. RICCI. Right now the Base's permit authorizes it to have one curie of americium in any form.

Chairman GLENN. In 1977, was it still the same then, or was it greater than that in 1977?

Dr. RICCI. I don't believe so. I don't know what we were authorized in 1977 Senator.

Lieutenant Colonel SWANSON. We also, of course, have a separate permit for the material generated as a result.

Chairman GLENN. When you were limited to one, do you know when the limitation to one occurred?

Dr. RICCI. The most recent permit was received within the past month or two. Before that I don't believe we were authorized americium in those quantities, except for specific items containing americium. In 1977 I don't think——

Chairman GLENN. If you had three, then that was illegal, or what?

Dr. RICCI. I don't know, Senator. We will have to check that out, and I can provide a copy of the permit in 1977 for the record. I am sorry, it would have been a license at that time from the NRC in 1977.

Chairman GLENN. Would the NRC have licensed above one back in those days? Would it be your opinion, NRC back there—you are still under oath, of course—that you would have authorized up to three or so for the storage here at Wright-Pat back in those days?

Mr. AXELSON. Bill Axelson, Nuclear Regulatory Commission.

License that was issued on June 13th, 1973, said they were authorized up to one curie of americium-241, and the expiration date on that license was July 31, 1978.

Chairman GLENN. It would sound—I didn't know I was getting into this, all this specific amounts. It would appear it was illegal to store that amount here to begin with; is that correct?

Dr. RICCI. Senator, I would have to take a look at the document that you have and see exactly what it says and compare it to the license authorization, but if that is correct, it would be in excess of our license authorization.

Chairman GLENN. We will have the staff contact you on that and get that for the record. Turning to the October 6th incident.

Colonel Swanson, you didn't comment specifically on that earlier, I don't believe. Do you have any further light to be shed on that incident?

Lieutenant Colonel SWANSON. Only, sir, that as we keep saying, you have to remember what we didn't know at that time. We had not been told that the individual had brought the drum from Newark. We still were assuming it was Air Force material. The amount of material, we didn't know what that was.

Chairman GLENN. But this was known, what, General, you knew that on October 1st, around that time period; is that correct?

General FOX. I'm sorry, sir?

Chairman GLENN. Did you know the americium was on base or was americium and that Mr. Haynes was involved with on, what, around October 1st; is that correct?

General FOX. The October 1st phone call, is that what you are referring to, from Mr. Axelson?

Chairman GLENN. Yes, that indicated that he was involved with this?

General FOX. The subject of that telephone call was his message to me that while Mr. Lewis is getting a clean bill of health, he has some reservations about it. I asked him to send me a copy of the report and that I would do some follow-up investigative action on it. I don't recall any discussion of the spill at that time.

Chairman GLENN. Was Mr. Haynes' name mentioned in this case at that point?

General FOX. I don't recall Mr. Axelson mentioning Mr. Haynes on that phone call, but he may have. I don't know.

Chairman GLENN. I was curious about another thing. Dr. Ricci here—I don't know how dangerous his dose of radiation is. Only he can tell us that. I am not looking into your medical condition, Dr. Ricci. Everyone is very definitely affected by this, and this occurred about a week after the information was actually on base that we had americium, which is—why was that not passed along to the appropriate people that were involved with this?

Lieutenant Colonel SWANSON. Sir, throughout that period I was characterizing the material as probably being plutonium-239. It was not until October the 10th that we received positive confirmation that plutonium was not involved. It would be normal, we are all trained to respond to weapons accidents, and when we see americium we normally jump to the conclusion that plutonium is involved. I was characterizing to him that it was plutonium at that point.

Chairman GLENN. Mr. Axelson, what was your contact with Wright-Pat regarding Haynes. When did you pass along that it was probably Haynes or something about that? Could you refresh us on that?

Mr. AXELSON. Would you like to swear me in?

Chairman GLENN. Yes, fine. Do you swear the testimony you are about to give is the truth, the whole truth and nothing but the truth.

Mr. AXELSON. I do.

TESTIMONY OF WILLIAM AXELSON, NUCLEAR REGULATORY COMMISSION

Mr. AXELSON. On October 1 I called Colonel Fox. The purpose of the call was a formal exit interview for the licensee. At that time we were going to turn over the allegation of the licensee at top-level management. The decision was made to give it to Colonel Fox. I finally reached him on October 1 and told him who I was, the Chief of Nuclear Materials Safety and Safeguards Branch in Region III. I explained to him the allegation we received from John C. Haynes and the result of our inspection. That is, Haynes transferred two drums of americium-241 radioactive waste to Jim Lewis at the Wright-Patterson Air Force Base sometime in the early 1974 time frame. I told him my inspectors were told by Lewis that he did not receive any waste. I told him that my inspector felt uncomfortable with Lewis's statement; we felt we were not getting the whole story. I explained to him who Haynes was and the problems we have had with him in the past, that he had lied to us in the past. However, we felt there was merit to this allegation due to the circumstances of how we received it from Haynes. I told him that there was not much more we could do and suggested he pursue the matter further. He said he would request the Air Force Office of Special Investigations to review the matter. He made no mention to me of an americium spill on October 1, 1986.

Chairman GLENN. Well, then, after that, then, General, what was your follow-up to that conversation?

General Fox. My follow-up was to get the report from Mr. Axelson so I could review—I wanted to review the facts on that particular report. I don't recall some of the things that he said in that conversation, of course, on the telephone, but I was awaiting his report results. I believe, I have not gone into any detail to reconfirm this fact, but I believe Mr. Shoup may have made a couple phone calls to check on that report. When I finally received the report I expected to see quite a bit of detail and evidence in there. It wasn't there, and that is when I turned to my vice-commander and said call the OSI; let's and get them on this case now, and then I had the conversation on the 22nd of October with the special agent from the OSI to tie in the NRC with the report that I received, with his investigation to give further detail.

Chairman GLENN. Dr. Ricci, back to you again. Were you aware—were there so many unknowns in that building you took every precaution that could have been taken, or would you do things differently if you had known there was americium, at least was in question in the building?

Dr. RICCI. Sir, given the information we had at the time, including the fact that we thought it was in the red drum, we followed what we considered to be proper precautions at the time. Obviously, if we had been told by anyone that we were dealing with potentially multi-curie quantities of americium, we would have certainly taken other precautions, but at that time we had no reason to suspect that the waste in Building 4060 was anything other than Air Force-generated, low-level waste.

Chairman GLENN. What would you have done? Different protective clothing and equipment or what?

Dr. RICCI. As it turned out, we, went to very strict engineering controls, including bubble suits and opening drums in glove boxes. We would not have opened a drum in 4060 with even an inner container inside if we felt there might be multi-curie quantities of americium-241.

Chairman GLENN. Were you involved with that, Colonel Swanson?

Lieutenant Colonel SWANSON. Yes, sir, I took a team in the morning of the 6th, and we built the facility inside the building to contain anything that might happen from drums being opened. That worked, but the amount of americium that was present was far greater than we expected. We also built an air lock onto the building at that time prior to the entry on the 6th so that if we did have just this type of incident, people wouldn't track material outside of the building.

Chairman GLENN. One question and my time is up, and I will pass it on to another member. How can we protect against someone who has a buddy on the base bringing something in? That is where the thing really started, I guess. How do you protect against that? I don't know if there is an answer to this. What do you do if you have somebody who is disobeying things and just as a favor is bringing something in? You don't want the guards hopping up unnecessarily and opening things up. You'd have guards on the gate exposed. Yet, you don't want the stuff to come on the base. I guess you try and prosecute anybody that violates the rules, regulations and laws that are broken and make an example out of them, I guess. And yet that is how the other barrel got off the base. How do we make sure that doesn't happen? You are the experts in this. Does anybody have any ideas, NRC or anybody else in the room, as far as that goes?

Colonel WOOD. Let me tell you some of the things that we are doing along those lines. I would be naive to try to tell you that with 100 percent assurity you cannot prevent an individual who is intent upon circumventing some systems for doing so unless you are going to have such an unreasonable hierarchy over it, and persons——

Chairman GLENN. Persons cleared to go through the gates and take stuff in and out, and so on.

Colonel WOOD. What we are doing is that for—we are requiring—again it can be circumvented, but we are requiring that before anyone can bring something on that no one individual can approve or accept onto our installations materials, radioactive materials, except those that are procured through our normal contracting in our normal logistics procedure. That is, if I have a buddy and I want to bring something on—and we do have arrangements wherein a researcher at an installation wants to borrow a source from another installation—it would still require the signature of both the RSO and the commander.

If somebody wants to circumvent it with a source such as americium that if you containerize it in anything substantial and it will fit in a very small area, there is little you can do to detect it if they want to bring it on. What you can do is make it difficult for that thing to be—you can make it easy for that thing to appear out of place if you enforce and require very strict inventory records. If

you make certain areas requiring two individuals to be there—if you have waste and materials required to be stored and kept in the user's area and something out of place shows up, you might not prevent it getting there, but you might find it there and you don't foster the environment in which it can be lost.

Chairman GLENN. This stuff is so important. You know, I can turn around and argue on your side a minute and say I can't guarantee that my basement in my home, somebody hasn't sneaked in there and I may have something hidden behind a suitcase or something I am not even aware of. A base, being a much larger institution than my house, is obviously more susceptible of having somebody sneak on or put something there if he wants. But here there was somebody legally authorized to come in, did things that he was not supposed to do, and we should be able to protect against that someway.

Lieutenant Colonel SWANSON. Sir, I think one of the primary measures that we can change to protect ourselves from this is to insure that the people who get the stuff in the first place have the integrity to use it properly and dispose of it properly. That was the true problem in this case.

Chairman GLENN. But then you have a buddy system for passing through certain areas and things like that where two people have to be involved or something? Maybe that is so cumbersome it wouldn't work.

Colonel WOOD. We intend to have that our consolidated waste sites. We do intend to have that to do for each using organization. You are right, it would be very cumbersome, especially in th medical service.

Chairman GLENN. Well, my time is up. Howard.

Senator METZENBAUM. I have nothing.

Chairman GLENN. Congressman DeWine.

Mr. DEWINE. No.

Chairman GLENN. I want to continue with a couple of other questions.

Dr. Ricci, you have followed this thing all the way through, and you are very personally involved with it. You know the time scales on all of these things. From what you now know, do you think that you should have been told about the Haynes connection? Would the word "Haynes" have triggered anything in your mind or would you have known to take additional precautions had you known some of that at the time, even though the report had been requested but wasn't there yet? Would that have helped you?

Dr. RICCI. I think the critical thing was not so much knowing about the name Haynes, because the name Haynes wouldn't have made any sense to me. Obviously, Mr. Haynes, I believe, made some allegations that the amount he transferred to the base was small quantities anyway. The real key issue was the fact that Mr. Haynes may have had multi-curie quantities, large quantities of the material and therefore we should have been on the lookout. As far as knowing about it in advance, we obviously didn't, and as far as why that is true. I really didn't know the reasons, but that information would have been useful had we received it.

Chairman GLENN. You have got hundreds of buildings out there. Are there any surveys you undertake to make sure there isn't any

radioactive material someplace you are not even aware of? I guess you can't survey every place every day, but since something like this occurred and since we did have someone involved who was doing things on a clandestine or surreptitious basis, do we know at this point we don't have other difficulties out there with something stored where it should not be because somebody brought it on and decided to keep it there?

Dr. RICCI. Senator, I think we are starting on a program where we are looking at things in stages. The first stage, of course, is to look at waste that we already have identified, and we are in the process of gathering that up and repackaging it with the assistance of a DOD contractor.

The second stage, of course, is to review records of surveys that have been done routinely and validate the fact that these routine surveys have not indicated the presence of any unusual material.

From what happened in 4060, it appears that at least from that standpoint most of the problem occurred as a result of that one drum, because we did go through all the other drums in that facility, and there was nothing in any of the other ones that would have caused any problems. All of the other material was generated by users at Wright-Patterson, and they were all low-level radioactive waste, which is what we would expect. I think we can take some steps to insure that there aren't any materials that may be hidden away but that will take time. However, it is my opinion that the problem in 4060 was the result of just that one drum.

Chairman GLENN. I don't want to get into all your personal history here, but can you tell us how much of this you estimate or they estimate you ingested of the americium and what the prognosis for your health is at the moment?

Dr. RICCI. As a result of the bioassay samples that I submitted to our laboratory and to the samples that were split with independent laboratories, it is estimated that I ingested approximately 8 nanocuries of americium-241. I should correct that. It wasn't ingested, it was inhaled. As a result of that, there is an estimated 50-year committed dose of approximately 4 rem. As a result of the possibility of ingestion as well as inhalation, there may be a 50-year committed dose to my bones of as much as 75 rem.

Chairman GLENN. That doesn't come out of the bones like it does the rest of the body, though, does it?

Dr. RICCI. Once it's incorporated in the bones it basically stays there.

Chairman GLENN. This raises your risk of what, cancer over a long period?

Dr. RICCI. It raises my cancer risk, yes it does.

Chairman GLENN. A substantial amount?

Dr. RICCI. I really don't know, and I would rather not comment on that at this time.

Chairman GLENN. On the correspondence between Secretary of Defense Weinberger and Governor Celeste, just a couple of follow-up questions on that. Now, as I understand it, General DeHart, there was a large amount of discussion on this. We have had several sources indicate to us that it was discussed, I think one of the opinions was that there was a lot of "heartburn" over this and there were many meetings and drafts and redrafts. You indicated

eight that you were aware of, I believe, and the final one was the only one that had the phrase in there "negligible amounts," which really looks like somebody was trying to cover up what the situation was. It took eight drafts and it finally has that "negligible amounts" in there. Something is going on. Can you tell us who put that in that final draft?

General DEHART. No, sir, I cannot.

Chairman GLENN. Did Secretary Weinberger sign that letter personally?

General DEHART. I assume he did, sir. I can double-check for that.

Chairman GLENN. Can you tell us whether Secretary Weinberger was ever briefed directly on the Wright-Patterson americium spills?

General DEHART. Both Secretary Aldridge and Secretary Weinberger were briefed on both the first and second spill.

Chairman GLENN. Before he sent the letter?

Colonel WOOD. That's correct; a briefing was given as a result of the letter going forward for signature.

Chairman GLENN. I am sorry, I can't hear you.

Colonel WOOD. The briefing that he received was given in response—Phil, you have got the briefing slides of the schedule [conferring with staff member]. He was asked to sign the letter out. He requested a briefing and was briefed on 19 February 87.

Chairman GLENN. By whom?

Colonel WOOD. By myself.

Chairman GLENN. Were you aware that the "negligible amounts" phrase was in there?

Colonel WOOD. I was aware and the letter had gone.

Chairman GLENN. The letter had gone—I am sorry.

Colonel WOOD. I was aware that that "negligible" phrase was in that letter when the letter had been dispatched.

Chairman GLENN. Before you knew that was in there?

Colonel WOOD. Yes, sir.

Chairman GLENN. Did you agree with that phrase being in the letter.

Colonel WOOD. No, sir.

Chairman GLENN. Were there other briefers besides yourself?

Colonel WOOD. No, sir. Not that I am aware of.

Chairman GLENN. What shop did the final version of the letter to the Secretary come out of?

General DEHART. I believe, if I am not mistaken, that would be DOD level.

Colonel WOOD. It would be DOD level.

General DEHART. It had already passed through Secretary of the Air Force level and must have come out of DOD.

Chairman GLENN. No, I am talking about before the letter got to the Secretary. What was the last stop before it got to the Secretary before he signed it?

General DEHART. The Secretary of the Air Force, SAF/LLI.

Chairman GLENN. What office is that?

General DEHART. That's the last office.

Chairman GLENN. What is the title of that office?

General DEHART. Legislative Liaison.

Chairman GLENN. Knowing how things work in Washington, I doubt if Legislative Liaison put in "negligible amounts" before the letter went on to the next office. That phrase might have been put in there before that. I don't know if this is worth pushing on down the line here until we finally figure what is the stop that put that in, but it is very misleading, as you are aware.

And I guess the next thing is if you disagreed with this, Colonel, why didn't you make a follow-up saying that you did not agree?

Colonel WOOD. Senator, I was going to ask you whether the letter had been dispatched before I saw the term in it.

Chairman GLENN. OK, but was any effort made to correct that if you disagreed with that——

Colonel WOOD. I passed that back up through our SGI channels by phone, that that term, while it may be correct for external to the facility, implies internal to the facility and that would be incorrect.

Chairman GLENN. The reason for going through this in some detail is——

Colonel WOOD. I did not take any further action other than the phone call. The letter was sent and it was gone.

Chairman GLENN. The reason I follow this up a little bit—and I don't want to beat it to death—it's because if we see this one time here coming out of the Secretary of Defense's office and his staff put that in there, insisted on it being in there and it wasn't the case, how many other times do we have the same thing going on around the country right now, maybe at Wright-Pat for all I know? We are on Wright-Pat primarily today, but I am concerned about the bigger loop, too. The Air Force is being given a license to do what it is doing by the NRC—clearing this out when it runs up to the top level, through the Air Force and the Secretary of Defense. I am concerned that we are not deliberately misled. It appears that there was deliberately misleading information sent back to the Governor. I don't know how many times that's occurred in other States or whatever, and I am not going to ask any more questions on this, but I just hope that we are getting a lesson out of this—that there shouldn't be any more bloomin' cover-ups.

It's not up to me to say what was covered up and what wasn't here, but I know when something like this was known and you have eight drafts and everybody discussing this, the NRC is involved, everybody under the sun is involved, and then Weinberger said, "We will get rid of this, we will send this thing back up there to the Governor out there and take care of it." He was misled. Is the same thing going on under this license the Air Force has to run their own shop? Is the same thing going on in different places all over the country? That's what I am concerned about more than I am this specific instance, and that's why I am pushing this a little bit here. So I hope this message goes back that it is bad stuff when they deliberately mislead us in what was going on. And you go back and you disagree with it, and you are the man in charge of this kind of stuff, and then they don't correct what was sent out, even though you asked them to do it.

Colonel WOOD. I don't know that it reached that level.

Chairman GLENN. You just said you expressed your concern.

Colonel WOOD. I expressed my concern to our SGI information legislative liaison.

Chairman GLENN. Somebody didn't take action on what you have told them, which they should have done, because that was very misleading, and I am concerned that it may be going on more places than just here. That's the question.

Everybody in the room that was involved with this, and whether it's NRC or whoever, obviously there are lots of things that happened here, and obviously we are trying to pin this down to what happened, who did what, mainly so it doesn't happen again. That's the main thing.

We have a drum missing. I don't know whether it went back to Barnwell, according to this thing; nobody does. It happened back in 1977. I don't know that we even know for sure what all the drums have in them at Wright-Pat right now. We have got them locked up, and they are just sort of there right now. The labels are off of them. How are we going to determine what is in them? How about other places around the country where this same thing is going on? That's what we are trying to correct.

And the reason I say "everybody in the room," if any of you have suggestions what we can do, as to specifically what we can do in legislating something that will help clean this up and make it so it can't happen again, then something good can come out of this. And nothing good, including Dr. Ricci, has come out of it so far. So I don't want to see that same thing repeated a hundred times around this country sometime in the future. If any of you have suggestions for us on this, other than what we have brought out in some of the questions today, for heaven's sake, let us know. I will talk to any of you on a confidential basis or for attribution or however you want to do it to give us some idea of how we can prevent this kind of thing from happening in the future.

So some of the questions from myself, Senator Metzenbaum and others have been very pointed here today, but all I am trying to do is get to the bottom so we can prevent this type of stuff in the future wherever, Wright-Pat or anyplace else around the country. If you have ideas, get in touch with me, and I can guarantee we will discuss it with you and see what can be done about this.

Howard, do you have anything?

Senator METZENBAUM. No questions.

Chairman GLENN. Thank you, gentlemen. We will move on to the next panel. I want to tell you before you leave, there may be questions. As I said before to the other panel, from other people on the Committee when we get back and they have the record. We appreciate your early replies to any other questions we have, so they can get in the record.

General Fox?

General FOX. Senator, I just want to clarify a comment on the drum made by Congressman DeWine real quick by Colonel Kollar.

Colonel KOLLAR. Excuse me, sir. I am told I may have misled you that the drum containing the approximate 3 curies would also depart Wright-Patterson within a couple of weeks. That is not correct. The drums that are being repackaged, that process is ongoing on that time schedule. The drum with the approximate 3 curies is awaiting appropriate disposal and shipping arrangements which

have not been finalized and is in a secured alarmed facility at this time. It will be shipped as soon as possible, and certainly the State will be informed of that.

Chairman GLENN. Do you ship by rail, air, truck?

Colonel KOLLAR. The current plan for that particular drum is toward a rail shipment.

Chairman GLENN. Your requirements for low-level, as opposed to transuranic which this was, are different shipping requirements?

Lieutenant Colonel SWANSON. May I address that?

Chairman GLENN. Sure.

Lieutenant Colonel SWANSON. Present arrangements are being worked with Department of Energy, of course, and this would have to go to a high-level waste disposal site for storage. Presently, the Department of Energy, I understand, is working with Mound. Our intent would be to use a special rail conveyance from Mound, bring it to Wright-Patterson, put the barrel on it, then combine it with a shipment from Mound. Those shipments are made under very careful conditions and in special rail conveyances.

Chairman GLENN. When you truck material, do you have convoy, or how do you do this? Do you have convoys, do you have high-impact casks? How do you do this?

Lieutenant Colonel SWANSON. Of course, it depends on the amount of material, and type of material, sir, whether it's low-specific activity waste (LSA waste), or high-level waste where it's going, whether it's fissile material.

Chairman GLENN. The americium-241, say, in the amount we are talking about Haynes bringing here. I presume that came up in the back of a car or something.

Colonel WOOD. Senator, as you know, the Department of Transportation has specific requirements outlined, and those requirements will be met that are designed to preclude exactly your concern.

Chairman GLENN. Just one last question. Dr. Ricci, how do you go about identifying all the stuff you have out there. If you don't even know what is in some of that?

Dr. RICCI. All of the drums and material that we have accumulated, if we do not know what it is or how much it is, we will determine that before it is shipped to a burial site. The contractor does have means of determining the types of material and the quantity, and that will all be done before any shipments are made.

Chairman GLENN. Thank you, gentlemen.

The next panel representing interests here in the State of Ohio, Robert M. Quillin, Radiological Health Program Director, Ohio Department of Health; General James R. Williams, Chief of Staff, Ohio Disaster Services, Office of the Adjutant General. And along with them I believe we have Dennis Muchnicki, the Chief of the Environmental Enforcement Section, Office of the Attorney General of Ohio representing our Attorney General, Anthony J. Celebrezze.

Gentlemen, we'd like to treat you like we have treated everybody else and ask you to rise and be sworn in, please. Do you swear the testimony you are about to give is the truth, the whole truth and nothing but the truth? Mr. Muchnicki?

Mr. MUCHNICKI. I do.

Chairman GLENN. Mr. Quillin?
Mr. QUILLIN. I do.
Chairman GLENN. General Williams?
Mr. WILLIAMS. I do.
Senator METZENBAUM. Mr. Chairman, I think I heard you say you wanted to leave at 3:30.
Chairman GLENN. We have to leave at 3:30 to catch our airplane, absolutely out the door.
Senator METZENBAUM. Five-minute limit to each of the witnesses so we have a chance to get to the last two witnesses.
Chairman GLENN. Gentlemen, can you make it on a 5-minute summarized statement? Your entire statements will be included in the record, gentlemen. We would appreciate that if you can do it. Go ahead. Who leads off here? Mr. Quillin, I guess I have you down.

TESTIMONY OF ROBERT M. QUILLIN, RADIOLOGICAL HEALTH PROGRAM DIRECTOR, OHIO DEPARTMENT OF HEALTH; JAMES R. WILLIAMS, CHIEF OF STAFF, OHIO DISASTER SERVICES, OFFICE OF THE ADJUTANT GENERAL;[15] E. DENNIS MUCHNICKI, CHIEF OF THE ENVIRONMENTAL ENFORCEMENT SECTION, OFFICE OF THE ATTORNEY GENERAL OF OHIO[16] REPRESENTING THE ATTORNEY GENERAL, ANTHONY CELEBREZZE

Mr. QUILLIN. Senator Glenn, Senator Metzenbaum, Mr. DeWine. I am Robert Quillin, Radiological Health Program Director, Ohio Department of Health. This hearing today revolves around a radioisotope americium-241. The number 241 represents the atomic weight of the isotope. Atomic weights run from 1 to 260. Americium-241 has several characteristics which should be understood so as to be able to evaluate its potential health hazard.

First, it has a relatively long half-life, approximately 450 years. In other words, it takes 450 years for half of the elimination of 241 reactivity to return to its daughter, plutonium-287.

Second, as with many other heavy elements, americium-241 is an alpha emitter; in other words, it emits alpha particles during its radioactive decay. It also emits a low-energy x-ray. As with other alpha emitters, americium-241 represents primarily internal hazards to humans from ingestion or inhalation.

Alpha particles have a characteristic of depositing a substantial amount of energy in a very short distance, which contributes to their ability to be very damaging internally. When inhaled, americium-241 obviously presents a hazard to the lungs. However, reported data indicates americium clears the lungs in half time from 10 to 100 days.

On ingestion, the longer-term hazard from americium would be to bones. Americium transition to bone is in the order of years rather than days. Externally to the body, alpha particles are not dangerous, since their energy is absorbed in the outer layers of the skin. In sufficient quantities of x-rays from americium-241 could, however, present an external hazard.

---

[15] See p. 122 for Mr. Williams' prepared statement.
[16] See p. 125 for Mr. Muchnicki's prepared statement.

Ordinarily the americium-241 that Mr. Haynes was licensed to possess and use in Ohio by the Nuclear Regulatory Commission was a substantial amount, 25 curies. In an unsealed, powdered form this isotope is particularly hazardous. Weightwise, 25 curies of americium-241 is not a large amount, about a quarter of an ounce. However, it must be remembered that the corollary of this is that a very small amount of americium-241 can contain a very large amount of radioactivity. Consequently, unsealed americium-241 must be handled with great care to prevent the spread of even a very minute amount of the material.

Chairman GLENN. This is right on the scale right close to plutonium, right next door, right?

Mr. QUILLIN. Yes.

Chairman GLENN. And we know how toxic plutonium is, and that's almost the same, right?

Mr. QUILLIN. Well, it has a somewhat different biological pathway than plutonium. Mishandling of americium-241 unless resolved can trigger long-lived radioactive contamination. Cleaning up with decontaminants of this material involves the expenditure of substantial sums of money to the U.S. Nuclear Regulatory Commission and U.S. Air Force can attest to this particular episode.

Of particular concern in this case was the transport of the americium-241 on the public highways between Licking County and Greene County. While the exact amount of americium-241 transported to Wright-Patterson Air Force Base is unknown, estimates provided to me by the Air Force indicate as much as two and a half or three curies could be contained in a 30-gallon drum that was located at Wright-Patterson Air Force base.

The shipping criteria is very strict for this quantity of americium-241. A 30-gallon drum is classified as the type of container for shipping purposes. It does not come close to meeting the current criteria for 2½ to 3 curies of americium-241. The type B shipping container or even larger, which provides more protection, should have been used.

Depending upon its location, a highway accident involving the release of americium-241 could potentially cause significant contamination resulting in at least extensive property damage or possibly a long-term health threat to those individuals involved. Location, time of day, weather conditions and the extent of the release, including the number of people exposed in degree, particular exposure, would have to be postulated.

Beyond concern about transportation of americium-241, there are concerns about the licensing of this material for this use and this location under the conditions that existed. I made my concerns known to the USNRC in writing in 1982 and verbally on other occasions. However, this was the extent of what the Department of Health could do since this was a matter between USNRC and one of its licensees.

This has been a frustrating situation. While the State had the overall responsibility for the health and safety of its citizens, there are certain situations where it must rely on the federal government. In this case I think it is clear that the federal government has not fulfilled its responsibility. Thank you, sir.

Chairman GLENN. Thank you.

General Williams.

Mr. WILLIAMS. Senator Glenn, Senator Metzenbaum, Mr. DeWine. I am Chief of Staff of the State of Ohio Disaster Services Agency. I am the State's official liaison officer to the Nuclear Regulatory Commission and the Governor's designated representative to receive the required notifications for the shipment of radioactive materials in and through the State of Ohio.

Let me first just briefly begin by presenting Ohio's response mechanism and the organization for managing radiological incidents which happen in the state. There are two agencies. Basically, the Disaster Service Agency and the Department of Health that have qualified, capable personnel who are trained and can handle radiological incidents once we are notified of them.

The capability exists over a 24-hour basis. We have about 14 persons available in the Disaster Services Agency staff, and Mr. Quillin has an equal staff, and it is ever enlarging as the budget will permit.

Historically, we have investigated on an average of about 26 incidents per year in the State of Ohio since 1974, and among those was the largest documented case of contamination in the United States which occurred in Licking County, and it wasn't the J.C. Haynes case. It was briefly mentioned by Mr. Bert Davis this morning, and it was the Shell well logging incident. And we have researched hundreds of miles of roadways, the bottoms of coal mines, other industries. We have recovered sources from homes and factories, and we normally conduct a radiation survey of all transportation going through the State and transportation incidents.

We have got a long-standing agreement with the United States Department of Energy and with the Nuclear Regulatory Commission to investigate on their behalf and at their request nuclear incidents in the State of Ohio, and jointly we have safely handled many of those incidents. In this regard we participated with the Nuclear Regulatory Commission in the 1985 raid and recovery operation at the J.C. Haynes property. Our personnel provided the radiation survey necessary and some of the escort required to escort the materials to Mound Laboratory in Miamisburg. We also provided the decontamination survey team for the clean-up of the Haynes property in conjunction with NRC, and we have always had an excellent relationship with both of these Federal agencies.

We were notified initially of this incident at Wright-Patterson in late October 1986, and we note that the NRC was not notified until October, and the incident occurred in September of 1986, and the NRC is recognized, as we have heard, by the Air Force as the licensing and control agency for nuclear materials. However, it's apparent that there is a lack of notification even among the Federal agencies, let alone getting the State notified.

After learning about this we performed our function and notified the Governor's office, and the Governor began a series of correspondence with Secretary Weinberger to protest the lack of notification and involvement for the state.

The State has a deep concern for those citizens who work on the base as well as those in adjacent areas, and there are hundreds of retired people who go to the base for their supplies and services

and of those like Boy Scouts that avail themselves of the civil affairs activities offered by the base.

Our deep concern stems from the interpretation of a minor event as you emphasized earlier, apparently defined by the Department of Defense or the Air Force. A minor event which cost over a million dollars in clean-up costs, demolished a building and contaminated workers is fairly significant, and if this is minor, it would take a catastrophe to be a major event. In any case, a definition of a minor event needs to be developed in a working agreement between the State and the Air Force. We have to conclude at the State level we will never be informed of anything of significance at the base which affects Ohioans.

As previously mentioned by the Air Force, an agreement does exist between the Ohio Disaster Services Agency and Wright-Patterson following an incident to notify DSA whenever an incident occurred which caused the activation of a base disaster response team. Anything lower than that type of activation, however, would probably not result in a communication between Wright-Patterson and the State, either through the Health Department or our office of Disaster Services for anything of significance, and in the light of the things that have been brought out by this particular testimony and the facts that have arisen that caused Governor Celeste to write his November 16th letter, those are the types of things that we need to deepen our working agreement with the Air Force so that we will be told practically of all those lower-level events that don't result in the activation of the base disaster team.

This is not to say that the relationship between the State and Wright-Patterson Air Force Base is all bad. In many cases we have used instrumentation provided by the base for detection of a radioactive source, and the base has radiation survey meters provided by the Disaster Service Agency. Additionally, we do emergency planning work, which is deep and ongoing.

Senator METZENBAUM. General, I think your time has about run out. Can you sort of wind up?

Mr. WILLIAMS. Yes. I can say that the implications brought about by this could carry on to Newark Air Force Station and other installations in the State of Ohio that are managed by the Defense Department, and we need a closer working relationship.

Senator METZENBAUM. Thank you very much.

Chairman GLENN. Mr. Muchnicki, representing the Ohio Attorney General's office.

Mr. MUCHNICKI. Thank you. Senator Glenn, Senator Metzenbaum, Congressman DeWine. I am Dennis Muchnicki, Chief of the Environmental Enforcement Section for Attorney General Celebrezze, Jr. Attorney General Celebrezze asked me to express his regret for being unable to attend today's hearing. Because my complete statement is being submitted, I will just provide a brief summary.

Chairman GLENN. Your entire statement will be included in the record.

Mr. MUCHNICKI. The issue which brings us here today is a matter about which the Attorney General has communicated with all of you previously and added to the deplorable record of environmental compliance which has been demonstrated at federal facilities.

The record of the Department of Energy at facilities throughout Ohio is well known, and it appears that the Department of Defense is now accumulating its own very unenviable record.

Americium, incidentally, at Wright-Patterson should not be viewed in isolation. It must be viewed in the context of the recent findings and orders which were issued by the Director of EPA to require ground water clean-up at Wright-Patterson. It must be viewed in light of the recent incident where an Ohio EPA inspector has had to jump in front of a piece of equipment to stop the removal of waste materials about which the Department of the Air Force had agreed to give Ohio EPA notice and then failed to do so.

In fact, to show you the extent of the problem that we are dealing with here, one of the arguments which the Air Force is making in challenging the clean-up order made by the Director of Ohio EPA is that they have contaminated other sites in other states far worse than they have here at Wright-Patterson. That is not a very comforting thought, but with regard to the specific incident involved here, the Attorney General's concern that depending upon the amount of material that was shipped from Newark to Wright-Pat, and when that shipment occurred, there may have been a violation of Ohio's pre-notification statute which is a third-degree felony.

The Attorney General asked me to pledge his cooperation with our law-enforcement officials and the Attorney General will thoroughly investigate that.

Chairman GLENN. Thank you very much. I do have a couple of fast questions. Is Ohio aware all the time about radiation sources in the State. In other words, if NRC approves something, somebody goes down to Oak Ridge, gets a bunch of stuff that is shipped in here, are you notified?

Mr. QUILLIN. Senator Glenn, our office maintains records of the licensees in the State of Ohio. We do not have records of the actual inventory of material that they have on hand at any one time.

Chairman GLENN. How do you know it's a new licensee? Do they send you a copy of that.

Mr. QUILLIN. They send us a copy of a new licensee.

Chairman GLENN. General, when they are going to ship stuff in here, are you aware it is coming?

Mr. WILLIAMS. We are not aware in every case. Only when those shipments fall under the provisions of Title 10 CFR 71 or 73. There are Federal requirements for that notification. We do have a spare statute that we have to depend on for large quantity shipments of material.

Chairman GLENN. General, I know you are proud of your organization, but do you have all the most modern equipment and facilities and measuring devices, radiation detection systems, and so on, that you need?

Mr. WILLIAMS. Yes, sir, we do receive everything capable to investigate an incident.

Chairman GLENN. I should be asking other people this, but I know years ago we were looking into some of these things, and the NRC and some of the other people in Washington had a great difference of opinion of what the different States' capabilities may or may not be. We have kept controls in the Federal level, because at

least at one time early on we didn't have enough experts in this country to really go out and have each state have its own expertise enough to know what was going on. I think that's changed through the years, but we have kept Federal control, and I think properly so. It is so important that if an incident of some kind occurs, it's going to blow across State lines, so we have kept it there. I hope that we here in Ohio, if we are not about number one in the country in this particular area, I'd like to know about it, so I could lean on some of the state legislators to get the equipment they need. I think it's that important.

Howard, do you have a question?

Senator METZENBAUM. Mr. Quillin, you mentioned in your testimony that you contacted the NRC in 1982 about concerns you had about Mr. Haynes' using americium. How did you know about this matter, and what did the NRC tell you in their conversation?

Mr. QUILLIN. The NRC notifies our office when they are performing inspections within the State of Ohio. That is in case we also have a regulatory interest in the licensing involved. This was a particular case in which they inform us of the situation involving Mr. Haynes, and I accompanied the NRC inspector to the site and based upon what I saw and my personal observations of Mr. Haynes in this facility and then wrote the NRC in Washington, D.C.

Senator METZENBAUM. And said——

Mr. QUILLIN. I expressed my concerns about Mr. Haynes' operation, because at that time his license was up for renewal, and I don't remember that I received a reply to that letter.

Senator METZENBAUM. Did they renew it at that time?

Mr. QUILLIN. I would have to refer to the NRC to their licensing——

Senator METZENBAUM. Are you aware of any other person in Ohio using radioactive materials for unusual purposes?

Mr. QUILLIN. Not right offhand, Senator, no.

Senator METZENBAUM. Would you check and see and advise us definitely whether there are any?

Mr. QUILLIN. Yes, sir, I will.

Senator METZENBAUM. Thank you.

When were you first told about the spill at Wright-Patterson, and who told you, the Air Force or the NRC?

Mr. QUILLIN. We received notification from NRC along with the notification the State received.

Senator METZENBAUM. When was that?

Mr. QUILLIN. That was in October.

Mr. WILLIAMS. October 23rd.

Mr. QUILLIN. October 23rd and subsequent to that in——

Mr. WILLIAMS. October 27th.

Mr. QUILLIN [continuing]. October 27th and subsequent to that earlier this year I received a briefing concerning the decontamination of activities within Building 4060.

Senator METZENBAUM. General Williams, did your office know that Mr. Haynes shipped radioactive material to the base?

Mr. WILLIAMS. We were not aware of any shipments by Mr. Haynes. We knew of his activities in Licking County, but we did not know he had made any shipments.

Senator METZENBAUM. Have you been kept informed of all developments surrounding this incident on a prompt basis?

Mr. WILLIAMS. The notifications that we have received from the NRC were generally given to us when they knew about them. The work going on at the Air Force base, we don't have any communications with them about the depth of the problem, nor will we have when they ship the material if they ship it under DOD/DOE exemptions.

Senator METZENBAUM. No further questions.

Chairman GLENN. Mike?

Mr. DEWINE. Just one question. Mr. Muchnicki, will you clarify something for me, just a point of clarification? You have testified, I believe, that you have contacts with the NRC and work with them; is that correct. Do you have any contact at all?

Mr. MUCHNICKI. I have none.

Mr. DEWINE. You do not personally. Does the AG's office?

Mr. MUCHNICKI. Through the Disaster Services.

Mr. DEWINE. Through the Disaster Services. In regard to what you do in regard to the base or any federal enclave, I assume you do not have any jurisdiction, actually, on that basis, so you are contacted, what, as stuff comes off the base?

Mr. MUCHNICKI. There are some matters that we are looking into now that I would not concede that there is no jurisdiction over the base.

Mr. DEWINE. All right, I like that.

Chairman GLENN. Except at Fernald there are some jurisdictional reservations.

Mr. MUCHNICKI. Yes, it is.

Chairman GLENN. There is a State agreement to force EPA—on and off the base, and so on. There is a relationship there, and there are court cases concerning the Fernald situation now, I believe, aren't there?

Mr. MUCHNICKI. That's correct. We filed a 183-page brief in the Federal District Court Fernald case.

Chairman GLENN. Just one further question. When americium-241 decays and gives off gamma rays, it's basically x-rays, low-intensity gamma rays. When Mr. Haynes was out there he rented a bedroom right next to his workshop. If you have people renting a bedroom right there a few feet away through the wall from where all this stuff was in the other room, now, did any of that stuff get through the wall and were there people sleeping in a continual x-ray bath? Have they been notified and checked those people and surveyed them to see what bad effects they may have had from living in that environment?

Mr. QUILLIN. Senator, I have not. This was a matter between the NRC licensing and NRC.

Chairman GLENN. How about NRC, have you followed up with any of that? Mr. Axelson, do you have that?

Mr. AXELSON. The day of the raid in March 1985, there were two citizens living at the facility. Both of them were surveyed intensely before they were allowed to leave. We wanted to do follow-up bioassay and body counting and urinalysis, and they would not let us do it. They refused to let us have that done.

Chairman GLENN. Have you followed up on that lately?

Mr. AXELSON. We haven't followed up on that since.

Chairman GLENN. Why did they do that?

Mr. AXELSON. I don't understand that, but that's what they did.

Chairman GLENN. You asked them to do it and advised them of the danger to them?

Mr. AXELSON. Yes. We explained to them that we would go, at the government's expense, give them whole-body and conduct urinalysis, and they did not want it. We did do a whole-body count on John C. Haynes and, surprisingly, he had no uptake.

Chairman GLENN. Is that unusual for people working in that environment, some people would absorb it and some would not? Is that normal?

Mr. AXELSON. No. Well, there are certain biological characteristics for all of us, so there are some people can get different uptakes. But once americium is put into a fine aerosol, which could have been easily the case in John C. Haynes' case, anybody would have shown an uptake.

Chairman GLENN. How do you account for that? Maybe he's got something we need to know in the military. [Laughter.]

Mr. AXELSON. We scratched our heads on that, Senator. We expected to find something in Mr. Haynes but we didn't.

Chairman GLENN. I don't mean to make a joke out of it, because it is not funny, but I am surprised. You say he worked in that environment and didn't have any problems?

Mr. AXELSON. No. In addition, Senator, we offered whole-body and urinalysis for the public surrounding the facility. We took some women and children down to the University of Cincinnati and had them whole-body counted. The results were negative. We had a public meeting in that area. We offered home surveys, water surveys, property surveys, and several people requested that, and we did that.

Chairman GLENN. Well, in some of my checkered past I have had whole-body counts for different reasons several times. They are absolutely painless. I recommend them for anybody.

OK, thank you, gentlemen. We appreciate it. Time is moving along with us here.

The last panel today is Ohio Organization Representatives. Ronald Crum, Scoutmaster, Boy Scout Troop 250, of Canton and Julia Collier, Administrative Assistant, American Federation of Government Employees, Council 214, and Jay Adler is here as well. If you all will come to the table, and I am sorry we have gotten down to where we don't have a whole lot of time. We appreciate your being with us. Julia Collier and Mr. Crum. Is Mr. Adler here? Mr. Adler wished to testify on behalf of the Sierra Club.

Will you stand and be sworn, please? Do you swear the testimony you are about to give is the truth, the whole truth and nothing but the truth? Ms. Collier?

Ms. COLLIER. I do

Chairman GLENN. Mr. Crum?

Mr. CRUM. I do.

Chairman GLENN. Ms. Collier, go ahead with your statement.

TESTIMONY OF JULIA COLLIER, GENERAL COUNSEL, AMERICAN FEDERATION OF GOVERNMENT EMPLOYEES, COUNCIL 214; AND RONALD CRUM, SCOUTMASTER, BOY SCOUT TROOP 250, CANTON, OH

Ms. COLLIER, Thank you. I would like the record to reflect that I am now general counsel for the American Federation of Government Employees, Council 214.

Chairman GLENN. OK, thank you.

Ms. COLLIER. I am here today representing AFGE Council 214, and AFGE Local 1138, as well as International Association of Machinists Locals 2065 and 2S33 and Firefighters Local 88. That's all the unions on the base.

The initial concern of the union was for the safety and welfare of the bargaining unit members as well as the others on base were concerned that the union was not notified, at least AFGE Council 214 and Local 1138 were never notified by AFLC of that accident, and we have a master labor agreement which requires such notification of such a safety hazard.

Union representatives received a briefing on this issue on Thursday, November 19th, from Major David Hunter from Brooks Air Force Base. Major Hunter presented the facts as he knew them that occurred October 2nd and thereafter. It seems that Major Hunter had things under control and was an expert in his field and things were done pragmatically and contamination was controlled after the team of experts got there.

However, before that time between September 18th when the spill occurred and October 2nd when the team of experts from Brooks Air Force Base arrived, I think the local officials' efforts to clear this spill were slow and haphazard. Just Friday I received information that some of our bargaining unit members security police from September 18th to September 26th continued to patrol the area around Building 4060 and some police officers, being more diligent than others, will go up and check and rattle the locks and chains on doors and make sure the buildings are secure. I understand that a briefing will be forthcoming for the security police and, again, they will be offered testing as well.

Probably there were some other factors that entered into the local official's slow response to the serious problem. First of all, we were told by Major Hunter that the local officials thought they had the spill under control. Also, the problem that's been brought forward time and time again, the labeling requirements were lax and the labeling was not on the containers, so they did not know what they were dealing with.

The third thing was the supervisor probably tried to keep this quiet, and that is unfortunate to say the least. They probably feared blame, which is something I think we really need to look at and take consideration of when we are evaluating this whole incident.

We are still concerned that the waste from the spill is still on base or at least part of it in a land-sea container. We realize that americium cannot be taken just anywhere and deposited. We hope, though, that it will be taken away soon so that we don't have any other chances of spill.

We also have to be concerned that radioactive materials are stored on base, and yet we don't have any on-base experts to take care of a spill if a spill occurs. I think if you are going to have a pitcher of water, somebody better be there prepared to take care of the spill. Why should we have to depend on someone all the way down in Texas who obviously it may take weeks to notify, because of our chain of command. Why should we have someone down in Texas be in charge of cleaning up a possible spill at Wright-Pat? I think we really need on-base officials and experts in this area.

Today in this hearing preventive measures have been brought out. Unfortunately, we didn't get the word on preventive measures that will be taken during our briefing, but I am glad to hear some will be taken. I still think we need training, and I believe training was part of the preventive medicine at AFLC plants.

During the briefing I was told that the four men who were going in 4060 for inventory were just doing an additional duty that was really outside their expertise. My question is: Why would such a thing occur? Why would they do the inventory? Let's have experts in toxic and radioactive substances deal with toxic and radioactive substances.

Also, I think it's really important to teach them in the training that a prompt response is the most important. Tell your supervisor, have the supervisors practice it on up the chain of command so we can get something done about it immediately.

It was said during the briefing that we can't run to the commander every time we spill a cupful, but I say, why not? At least what can't be cleaned up within minutes. It seems to me a radioactive spill is never anything minor.

Because of the lack of preventive measures being taken immediately, I see that they talk about putting it in Air regs, rates, and I know those take time for them to negotiate. I know today there are some that haven't been implemented from 1982. But it could happen again, and next time it could be a disaster. We are lucky this time, but we hope that nothing worse ever happens.

But I do want to point out in closing that the one important factor to be considered regarding this whole incident is the effective action taken against individuals in response to this incident. Will strong actions which may be justified here create the possibility of workers trying harder to hide a spill for fear of prosecution and persecution? I'd like you to take that into consideration. Thank you.

Chairman GLENN. Thank you very much, Miss Collier. Mr. Crum.

Mr. CRUM. I'd like to thank Senator Glenn and Senator Metzenbaum and Mr. DeWine for having this hearing, and I would also like to thank the Armed Forces and the Air Force in particular for allowing the Boy Scouts to use their facilities while they are in transit. The cost of most other facilities is prohibitive. I am speaking in behalf of the parents of boys of 250 and possibly other scout parents.

The process in which we found out about the incident was unacceptable. We should have been notified by proper authorities instead of the news media. We are here to gather facts of the inci-

dent and possible exposure we may have received. That is the end of my opening statement.

Most of the questions that we have written down were answered either favorably or otherwise, and the only one was the fact that the parents would like to have the boys tested. This is not myself, this is the parents of the boys. I have no children in the scout troop.

Chairman GLENN. Wasn't there an offer made to check everyone? I believe there was.

Mr. CRUM. Yes. I don't think that's been finalized. It's already been offered by the Air Force that they would check.

Colonel KOLLAR. I made that offer last week and confirmed the availability of that. I sent out the letter yesterday by certified mail to all the troops involved in the two weekends prior to October 1st.

Chairman GLENN. Good. I meant to ask you earlier, because I saw that in the paper in a news clip yesterday.

Senator METZENBAUM. If the parents want an independent investigation, not one done by a military, would that be available?

Colonel KOLLAR. The laboratories involved are going to be independent laboratories you can contact. We are going to stay as distant as we can.

Senator METZENBAUM. But there would be an independent laboratory?

Colonel KOLLAR. Yes, sir.

Chairman GLENN. Are you finished?

Mr. CRUM. Yes, I am finished.

Chairman GLENN. Fine. Let me just ask a couple of questions here. Miss Collier, I think the time of response is better, maybe, than you think it is. The Air Force has this radiation assessment team. They are on call any time. They are there within a matter of hours, supposed to be, anyway, when something like this occurs, I mean, if there is a radiation spill. They weren't notified of the seriousness of this. That was our question regarding the reports of this "minor incident." So the AFRAT team, as it's called, did not really take off and get here and get control of the situation, I don't believe.

Colonel, do you have a comment? Is that not correct?

Lieutenant Colonel SWANSON. In this particular case the Air Force Radiological Assessment Team was at Wright-Patterson within an hour of the spill. The Air Force radiological package, the package of special limitation, we asked for it one afternoon; they converted an AC 141 in flight to the Air Force base; the team arrived at 8:15 the following morning. We exercised the weapons problem, works beautifully for this type of problem.

Chairman GLENN. They were here within an hour, but on what day? Because there is a question as to how long this was kept quiet.

Lieutenant Colonel SWANSON. We sealed the building over the weekend, determined we were going to need a radiological assessment team.

Chairman GLENN. Once you notified them, they were here within an hour?

Lieutenant Colonel SWANSON. That's correct, yes.

Chairman GLENN. You heard the testimony and questioning on that.

AFGE, have you had any past problems or incidents where anyone was irradiated accidentally or whatever here and you had a report of that, and was screening immediately available for that individual or any of those individuals? Has that happened in the past, or is this the first major situation that has occurred? Miss Collier?

Ms. COLLIER. There have not been any radiation problems in the past, problems at any of the plants because they weren't ready.

Chairman GLENN. Is screening readily available? There isn't anything where you feel anyone may or may not have been radiated but you want to check; is that screening available and do your people know that?

Ms. COLLIER. I'm not aware if there is screening on base available. I imagine they could go down to Miamisburg, probably, for testing or bring it up here to the city of Cincinnati.

Chairman GLENN. I didn't know if there was any standard procedure for that, because in a radiation situation like this, what happens is it's important to know what to do in minutes, not going to Miamisburg or someplace for screening three days later.

Ms. COLLIER. Right.

Chairman GLENN. If something happened, you would want to know what to do now? Your people certainly have been briefed on that, I would think.

Ms. COLLIER. As far as I know, there are no procedures right now.

Chairman GLENN. Howard?

Senator METZENBAUM. Nothing further.

Chairman GLENN. Mr. DeWine?

Mr. DEWINE. No.

Chairman GLENN. I appreciate those of you who have had to stay here a long Saturday when you'd rather be someplace else, but it was the only way. With our duties in Washington, we really could conduct this without letting it go on for another three or four weeks, and we did want to get it done. So we appreciate your willingness, all of you who were with us today as witnesses, and we may have additional questions for you as I told the other panel. We hope you will respond to those if other members of the Committees do have questions, and the hearing will stand in recess subject to call of the two Chairmen at some time.

[Whereupon, at 3:30 p.m., the hearing was recessed, subject to the call of the Chairs.]

APPENDIX

Statement of
Joseph A. Lenhard
Assistant Manager for Energy Research and Development
U.S. Department of Energy, Oak Ridge Operations
Before
Committee on Governmental Affairs and the
Energy and Natural Resources Committee

Mr. Chairman and Members of the Committee:

Mr. Chairman. My name is Joseph A. Lenhard. I am Assistant Manager for Energy Research and Development with the Department of Energy's (DOE) Oak Ridge Operations Office headquartered in Oak Ridge, Tennessee.

Oak Ridge Operations is a major field office of DOE and is responsible for carrying out major program missions in the field of energy as established by DOE Headquarters in Washington, D. C.

Among the major facilities under Oak Ridge Operations is the Oak Ridge National Laboratory (ORNL). ORNL is a multidisciplinary energy research institution that conducts applied research and engineering development in fission, fusion, and other energy technologies and scientific research in basic, physical, and life sciences. The Laboratory, employing some 4,500 persons, is operated for DOE by Martin Marietta Energy Systems, Inc.

In my position, I and my staff are responsible for overseeing the activities of ORNL in accordance with program and budget

GUIDANCE PROVIDED BY DOE HEADQUARTERS AND CONSISTENT WITH THE TERMS AND CONDITIONS OF THE CONTRACT BETWEEN DOE AND MARTIN MARIETTA.

IN ADDITION TO THE CONDUCT OF A BROAD RESEARCH AND DEVELOPMENT ACTIVITY, ORNL HAS SERVED DOE AND ITS PREDECESSOR AGENCIES SINCE 1946 AS A NATIONAL CENTER FOR THE DEVELOPMENT, PRODUCTION, AND SALES OF BOTH STABLE AND RADIOACTIVE ISOTOPES. THESE ARE WIDELY USED IN MEDICINE, INDUSTRY, AGRICULTURE, AND RESEARCH. THE ISOTOPES PRODUCED AND DISTRIBUTED ARE NOT AVAILABLE COMMERCIALLY, EXCEPT IN CASES WHERE DEMAND EXCEEDS PRIVATE SUPPLY.

SOME ISOTOPES ARE BOTH PRODUCED AND SOLD BY ORNL. IN OTHER CASES, THE MATERIAL SUCH AS AMERICIUM-241 IS PRODUCED AT OTHER DOE FACILITIES AND SHIPPED TO ORNL FOR SPECIAL PROCESSING AND DISTRIBUTION.

IN THE MORE THAN 40 YEARS THAT ORNL HAS OPERATED ITS ISOTOPES PROGRAM, MORE THAN 400,000 SHIPMENTS VALUED AT APPROXIMATELY $190 MILLION HAVE BEEN MADE TO USERS THROUGHOUT THE WORLD. LAST YEAR ORNL MADE SOME 3,100 SHIPMENTS TO CUSTOMERS THAT INCLUDED LABORATORIES, UNIVERSITIES, GOVERNMENT AGENCIES, FOREIGN GOVERNMENT AGENCIES, HOSPITALS, AND PRIVATE ORGANIZATIONS.

THE OAK RIDGE OPERATIONS OFFICE IS RESPONSIBLE FOR MONITORING THE OVERALL PERFORMANCE OF ORNL, INCLUDING THE ISOTOPE PRODUCTION

AND SALES ACTIVITY. WE MONITOR HEALTH, SAFETY, ENVIRONMENTAL, TRANSPORTATION, AND QUALITY ASSURANCE PERFORMANCE. APPRAISALS ARE PERIODICALLY CONDUCTED TO ASSURE COMPLIANCE WITH DOE ORDERS AND CONTRACTOR REQUIREMENTS.

AMONG THE MOST WIDELY DISTRIBUTED ISOTOPES FROM ORNL IS AMERICIUM-241, WHICH IS A RADIOISOTOPE PRIMARILY USED IN SMOKE DETECTORS FOUND IN MILLIONS OF HOMES, FOR OIL EXPLORATION, AND FOR OTHER USES.

BEFORE ANY PRIVATE ORGANIZATION OR INDIVIDUAL CAN PURCHASE RADIOISOTOPES FROM ORNL THEY MUST OBTAIN A LICENSE TO RECEIVE, POSSESS, AND HANDLE THAT MATERIAL FROM THE U.S. NUCLEAR REGULATORY COMMISSION (NRC) OR FROM A STATE WHICH HAS BEEN DELEGATED THAT LICENSING AUTHORITY BY THE NRC.

ORNL'S PROCEDURES CONCERNING LICENSE VERIFICATION ARE IN ACCORDANCE WITH NRC REQUIREMENTS GOVERNING TRANSACTIONS BETWEEN LICENSEES SET FORTH IN SECTION 30.41 OF TITLE 10, CODE OF FEDERAL REGULATIONS. THIS REGULATION, AS USED BY ORNL, PROVIDES SEVERAL METHODS FOR THE SELLER TO VERIFY A CUSTOMER'S LICENSE. THE METHOD ORNL TYPICALLY USES IS TO OBTAIN WRITTEN CONFIRMATION FROM THE CUSTOMER OF ITS LICENSE BY MEANS OF AN ENTRY ON A PURCHASE ORDER. HOWEVER, IN EMERGENCIES, WHICH ARE RARE, ORAL CONFIRMATION MAY BE OBTAINED, PROVIDED THAT IT IS CONFIRMED IN WRITING WITHIN 10 DAYS.

After obtaining the purchase order, with the appropriate NRC or State license information, the order is processed and the material packaged in approved containers meeting Department of Transportation regulations for shipping radioactive materials.

Once the isotope shipment has been consigned by ORNL to the carrier, responsibility for the proper handling, processing, subsequent shipments, and final disposal then rests with other state and Federal regulatory agencies.

A record of ORNL's Isotope Distribution Office indicates that the J. C. Haynes Company of Newark, Ohio, placed two orders for Americium-241, one for two grams on May 25, 1971, and one for four grams on October 10, 1971. The company provided a license number of 13774-01, which at that time would have been issued by the former Atomic Energy Commission. The complete files on these two orders and other orders placed at that time have been disposed of in accordance with record management procedures which, for this class of records, specifies a six-year retention period.

Mr. Chairman, that concludes my statement.

DEPARTMENT OF THE AIR FORCE

PRESENTATION TO THE SENATE COMMITTEE ON GOVERNMENTAL AFFAIRS

AND COMMITTEE ON ENERGY AND NATURAL RESOURCES

SUBCOMMITTEE ON ENERGY REGULATION

NOVEMBER 21, 1987

SUBJECT: AMERICIUM-241 LEAKS AT WRIGHT-PATTERSON AIR FORCE BASE

STATEMENT OF: Brigadier General Charles E. Fox, Jr.
Vice Commander
Ogden Air Logistics Center
Air Force Logistics Command
United States Air Force

BRIGADIER GENERAL CHARLES E. FOX, JR.

Brigadier General Charles E. Fox, Jr. is Vice Commander of the Ogden Air Logistics Center, Hill Air Force Base, Utah.

Brigadier General Fox was born July 11, 1941 in Winchester, Kentucky, and graduated from Winchester High School. He earned a bachelor of arts degree from Denison University of Utah in 1972. His professional military education includes Squadron Officer School, Air Command and Staff College and Air War College.

Brigadier General Fox entered the Air Force in September 1963 after receiving his commission through the Reserve Officer Training Corps at Denison University. He earned his pilot wings at Webb AFB, Texas, in October 1964. His initial assignment was with the 306th Bombardment Wing at McCoy AFB, Orlando, Florida, where he spent the majority of his time deployed flying KC-135 missions in Southeast Asia.

In 1967-68 he flew with the 38th Aerospace Rescue and Recovery Squadron at Korat AB, Thailand as a rescue crew commander. In October 1968, he was assigned as an EC-135 squadron pilot with the 7120th Airborne Command and Control Squadron at RAF Mildenhall, England (USAFE). He transferred to Ramstein AB, Germany in 1970 and was selected to command OL-J 7300 Material Squadron which supported the Army's missile deployment for the European Theater.

He continued his logistics career broadening with a tour as the base traffic management officer at Langley AFB, Virginia, flying T-39s to maintain flying efficiency.

From 1975-78, he was assigned to the 6th Airborne Command and Control Squadron at Langley as an instructor pilot, standard/evaluation flight examiner and assistant operations officer. He moved to Rapid City, South Dakota, in April 1978 where he served as operations officer of the 4th Airborne Command and Control Suqadron in the 28th Bombardment Wing, flying EC-135s. In May 1980 he was selected as Commander, 28th Air Refueling Squadron.

From August 1981 to May 1982 Brigadier General Fox attended Air War College at Maxwell AFB, Alabama. In May 1982 he was assigned as the inspector general of Warner Robins Air Logistics Center at Robins AFB, Georgia. He became the Robins AFB deputy base commander in November 1982, and in August 1983 was assigned as the Chief, Resources Management Division in the Directorate of Maintenance. From June 1984 until April 1987, Brigadier General Fox was the Commander of the 2750th Air Base Wing, Wright-Patterson AFB, Ohio.

Brigadier General Fox is a command pilot with more than 5,000 flying hours.

Brigadier General Fox is married to the former Sharon Elaine Troxel from Wolcott, Indiana. They have one son and three daughters: Chas, 24; Noelle, 20, a college junior; Melissa, 14, in the ninth grade; and Erica, age seven.

Mister Chairman and Members of the Committee:

I appreciate the opportunity to appear before you to discuss the response by Wright-Patterson AFB officials to the radioactive incident which occurred in Building 4060 in September 1986.

I am currently the Vice Commander of the Ogden Air Logistics Center, Hill Air Force Base, Utah.

I was the 2750th Air Base Wing Commander of Wright-Patterson AFB, during that time. On September 26, 1986, Lt Col John Swanson, our Health Physicist at Wright-Patterson's Medical Center, reported to me that radioactive contamination had escaped from a drum inside the base radiological storage facility on September 18, 1986. Our primary concern from the outset of the incident was and still is the health of the people on the base and in the surrounding community. Our first actions were to control the building and ensure there was no release of radioactivity from the facility. From the time we took control of the situation on the 26th, I believe the actions of our people in responding to this most unusual situation were commendable. I am proud of the accomplishments of our dedicated people in regard to the response to this incident and I stand by the actions of the control group formed on 26 September 1986.

I am compelled to say this incident was caused by the irresponsible actions of a few employees. On 18 Sep 86, they acted irresponsibly both inside and outside building 4060; they withheld information; they misled the investigation and recovery teams and endangered themselves and the lives and

health of others. In contrast, the team the Air Force put together, as of 26 September 1986, to respond to the incident was professional, well qualified, well prepared, and above all, successful in first controlling and then cleaning up the contamination.

I'll begin my discussion of the incident with what was reported to me and the actions of the group formed to respond to the release of what was later identified to be Americium 241. Around noon on September 26, 1986, Lt Col John Swanson of the Wright-Patterson Medical Center reported to me there was a release of a radioactive substance inside Building 4060 at Wright-Patterson. I immediately convened a response group to assess the situation and determine the initial actions which had to be taken. I decided we had to ensure the facility was under control and to maintain the safety of our people as our highest priority. The Response Team initially went to the facility on September 26, 1986 and took numerous readings. The readings around the facility taken with instruments sensitive to the low energy gamma radiation emitted by plutonium 239 and Americium 241.

We secured the area by taking the following actions:

a. Immediately determined if contamination existed external to the building.

b. Sealed the building with tape.

c. Cordoned off the area.

d. Restricted access over the weekend

e. Obtained Air Force Radiological Assessment Team support for decontamination operations and environmental monitoring.

f. Prepared suitable response plan for implementation.

At the time the incident was first reported we knew very little about what we were facing. Lt Col Swanson believed the material could also have been a contamination product of plutonium. We also considered material may have been generated on base some years ago. That material concerned a spill at AFIT in Area B of the base. With the limited information we had, I directed the staff to make the necessary notifications. I asked whether any notices to the Environmental Protection Agency had to be given. I was advised that if there had not been a release to the environment, then no report was necessary. I was advised there was no reportable release to the environment from the facility and notices were not made. Dr. Swanson notified the Radioisotope Committee (RIC) at Brooks AFB who is the Air Force license holder for these materials. The RIC's responsibility was to notify the NRC. This was the base reporting chain under our permit.

We then dispatched a team to the site. Lt Col Swanson and Mr Vic Dunn, with the assistance of the base disaster response force and the fire department, controlled the area. Lt Col Swanson used several instruments to check for radiation outside the building. After checking the area and finding no external contamination, Lt Col Swanson briefed me and then proceeded to seal the building with duct tape. This operation was suspended at 7:30 PM due

to adverse weather. On Saturday, 27 September 1986, Lt Col Swanson returned to the building and again checked for contamination. None was found. The Disaster Response Force arrived at 10:00 AM and checked the area around Building 4060 thoroughly for radiation. Again none was found. Sealing of the building continued until the weather forced Lt Col Swanson to stop around 1:00 PM.

Work also began immediately on September 26, 1986 to ensure complete and proper reporting of the incident. I would like to address this issue in relation to the participation of my staff from September 26th on. The eight-day delay in making the initial report was not authorized and reflects poor management control within the Bioenvironmental Engineering Services Directorate. We have taken steps to correct this problem by emphasizing proper reporting. I instructed my staff to prepare a message to be sent to the Air Force Operations Center in Washington, D.C. reporting the incident. The message was sent out at 1900 on September 26, 1987. We did not report the incident to the state or local community because we believed there was nothing other than a low level source in the facility and did not want to cause undue concern. Lt Col Swanson also contacted the then Secretary of the Radioisotope Committee (RIC) to discuss the situation and the RIC secretary indicated his office would notify NRC. Lt Col Swanson reported to the RIC that there had been a very high level alpha release inside the base radioactive storage facility and that it looked like americium or plutonium. The RIC then attempted to contact Region IV, the license issuer for the Air Force. After several failed attempts, the RIC representative contacted Region IV at approximately 4:40 PM on the 26th. Unfortunately, the person who called Region IV did not properly characterize the incident. The RIC representative

did report it as a spill, that there would be a review and more details would be forthcoming. On 1 October, 1986, the base received news media inquiries alleging a cover-up of a radiation spill from a local radio station and television station. The base spokesman stated there had been no coverup and then read him a previously prepared statement. The statement indicated the base notified the Air Force Radiological Assessment Team (AFRAT) about contamination within the base radiological waste storage facility. The base personnel involved in the incident encountered unexpected radiological readings. The base reported no danger to the public or to the teams investigating the incident.

On October 2, 1986 there were two additional press inquiries dealing with the incident. These inquiries resulted in two TV reports and two radio reportswhich aired on 1 and 2 October 1986. Press inquiries then tapered off until October 24, 1986 when NRC Region III entered the situation. From then until November 18, 1986 there were ten inquiries on the cleanup of the incident. We responded directly and truthfully to the media based on the information that was available.

Examples of outside contacts on the incident included the use of the Air Force Radiological Assessment Team, the Air Transportable RADIAC Package and the use of Chem Nuclear as a contractor. Further, the RIC continued its contacts with Region IV NRC, including notice on October 10, 1986 of the opening of the barrel for a second time on October 6, 1986. The contact was triggered by the positive test for exposure by one of the response team members. Further, NRC Region III was contacted by the RIC on 16 Oct 86 concerning any missing americium sources. With the number of contacts made to the media, the

information given to NRC, and the number of outside agencies who were responding to the incident, it cannot fairly be said there was a coverup.

Much has been made over the selective withholding of information by the Air Force. Nothing could be further from the truth. Information as to what the radioactive material was and where it came from was actively withheld by the Radiation Protection Officer (RPO). The Air Force's ability to draw the connection between the RPO and Mr J.C. Haynes, the individual who surreptitiously gave the americium to the RPO for storage and disposal, was made all the more difficult by the NRC's actions. NRC Region III knew for some time about the possible source of the drums but the NRC downplayed the significance of the information when they outbriefed Mr Tom Shoup, the Deputy Base Civil Engineer, during an inspection in August 1986. Even then they did not find any substantiation for allegations against the RPO. That outbrief was so insignificant to Mr Shoup that he recalls a very brief conversation with me not giving me "any more detail than to expect a clean bill of health." Mr Shoup did not mention the name Haynes to me.On September 22, 1986 I was informed by Mr Tom Shoup, Deputy Base Civil Engineer, that NRC wished the Air Force to polygraph Mr Lewis. I had my OSI and staff lawyer in the room with me. We discussed the issue and they recommended no polygraph for an individual just given a clean bill of health by the NRC, especially if the NRC was not providing substantiated basis for requiring it. I told Mr Shoup we should have the OSI contact the FBI to make a formal request for consideration. Mr Shoup transmitted this to Mr Axelson's secretary. On October 1, 1986 the NRC called to tell me that they were finished with their report and that they were not pursuing any further investigation of Mr Lewis. He did relay to me that he still questioned Mr Lewis' truthfulness. To my

knowledge, I had never seen nor spoken to the caller, Mr Axelson, prior to this conversation. Since I was absolutely convinced that the NRC was fully aware of our spill, that discussion did not enter our brief conversation. As a base commander, I do not normally carry on lengthy conversation with people I do not know. At this point in time, I had every reason to believe that the NRC personnel who were monitoring our spill situation were fully informed through the Radioisotope Committee. Also, at the time this call was made, our response team believed the source of release was an AFIT spill or a contamination product of plutonium. I asked him to forward me a copy of the report to continue reviewing this case. I did not receive a copy of this report until or about October 20. When I did receive it I was disappointed at its lack of content, but still decided to aggressively pursue an OSI investigation. My logic was that by then I had positive confirmationthat the material was americium 241 and not a plutonium 239 contamination product. More importantly, the NRC report of 14 October stated to us that Lewis did not receive material from sources outside the Air Force yet did not provide sufficient facts to support that conclusion.

Moreover, based on the knowledge that pure americium was present, I became distrustful of Mr Lewis despite his sworn statement and being cleared by NRC. Because of the few details in the NRC report, I became more suspicious of Mr Lewis at that time and directed the OSI to investigate. I also told the OSI that they should contact the NRC for additional information concerning Mr Lewis.

I directed Col Kollar, the Vice Commander, to call the OSI and get rolling immediately on Mr Lewis' involvement. On October 22 I discussed this case

with Special Agent Lannak of the OSI and advised him that the NRC could possibly provide him with information on Mr Lewis' connection with the hazardous waste origin.

An additional reporting requirement in Air Force channels was triggered on September 26, that is, the requirement for investigating and reporting by safety personnel. The base safety office participated in the response on 26 September 1986. On 29 Sep 86, the Air Base Wing Commander transferred the responsibility for the investigation to the Air Force. Logistics Command Inspector General's Office which finalized its investigation on October 30, 1986. The report of the investigation is contained in the "FADED GIANT" report which has previously been provided to the committee.

On 24 October 1984, the OSI, NRC, and FBI interviewed Mr Lewis and he admitted receiving radioactive material from Mr Haynes. Immediately upon being informed of this, on October 24, 1987, and upon the recommendation of the NRC, I removed Mr Lewis from his position at the RPO.

At this point we would like to provide a detailed chronology of the events from 26 September 1986 forward.

Chronological Order of Significant Events

On 26 Sep 86 Colonel Fox was notified that there had been a spill of radioactive material in Bldg 4060 in the munitions storage area. He directed Colonel Swanson to survey the exterior of the building and the surrounding area to determine whether there had been a radioactive release and to also make the proper notifications which included notifying the Nuclear Regulatory Commission through the USAF Radioisotope Committee. Dr Swanson called Lt Col Burr at the Air Force Radioisotope Committee and informed him that there had been a very high alpha release within the authorized base radioactive waste storage facility at WPAFB. The exact type of material was unknown but americium 241 was found to be present. Dr Swanson specified that it could be plutonium 239 since that would be the type of material normally associated with americium on a military installation. Colonel Burr and Dr Swanson discussed the possibility of bringing in consultants from the Air Force Occupational and Environmental Health Laboratory to assist in the evaluation and cleanup of the spill. Dr Swanson proceeded to Bldg 4060 to verify that there had been no release from the building. He then presented this information to Col Fox.

On Saturday and Sunday, 27 and 28 Sep, Dr Swanson lead a team which sealed Bldg 4060 and monitored the immediate area surrounding the bldg to ensure that there had not been a radioactive release.

On 29 Sep, arrangements were made with the USAF Occupational Environmental Health Laboratory (OEHL) to ship a sensitive survey instrument to Wright-Patterson to be used for environmental monitoring. The instrument

arrived on 1 Oct 86. Dr Swanson and Dr Ricci proceeded to the Boy Scout camp and monitored the location where the individuals had washed their hands at the water spigot. They also monitored throughout the Boy Scout area as well as the road leading back to the munitions storage area. No radiological contamination was found in any of these locations. Dr Ricci and Dr Swanson then made contact with the Air Force Radiological Assessment Team (AFRAT) which had arrived on site to assist in the clean up of Bldg 4060. They briefed the team members and then proceeded to the Logistics Readiness Center and briefed Colonel Fox, the Base Commander, and his staff concerning the results of the environmental measurements. A lengthy discussion ensued in which issues such as the amount of material contained in Bldg 4060, the type of material, and the source of the material were raised. Since no specific information was available regarding this material many diverse possibilities were presented, discussed, and dismissed. At that meeting, Maj Ed Maher, AFRAT, Dr John Ricci, and Dr John Swanson outlined a plan for cleaning up the base facility. Maj Maher would take his team into the facility, attempt to survey the extent of contamination and at the same time assess the utility of vacuuming the material into high filtration vacuum cleaners. This entry was eventually made on 3 Oct 86 and was successful in that contamination levels within the facility were significantly reduced and samples of the material were obtained for laboratory analysis to determine the presence or absence of plutonium 239. The facility held about 35 containers. The decision was made to construct an inner containment within Bldg 4060 and to conduct repackaging operations within that containment. In addition, a decontamination facility was added to Bldg 4060 to allow entry and exit without contaminating the environment.

On the morning of 6 Oct, a team of three individuals entered the facility through this decontamination air lock and proceeded to construct the inner containment. At the same time they cleaned and packaged all identifiable gamma sources within the building. This action was taken to reduce background gamma levels in order to permit the sensitive instrumentation now at the site to measure accurately any contamination levels external to the building without interference from sources within the building. Several drums of identifiable waste were also repackaged at this time. The team exited the facility and decontaminated without incident. Further monitoring external to the facility indicated that there might still be gamma sources within the building which were causing elevated background levels. It was decided that the second team would enter on the afternoon of 6 Oct 86 to find and remove the gamma source or sources causing this interference.

On the afternoon of 6 Oct 86 a team consisting of Dr Ricci, Maj Hunter, and Derek Cornette, Chem Nuclear, Inc., entered Bldg 4060 for the purpose of locating and removing the remaining gamma source or sources. A survey of the drums within the building using a Geiger-Meuller (GM) tube uncovered one drum which yielded a higher reading. That drum was taken to the inner containment. Great care was taken to avoid the red drum which was believed to contain material involved in the initial release. The selected drum was opened and the contents reviewed individually to locate the source of the gamma radiation. When the source was located it was removed and placed in double plastic bags. Monitoring of the team members for alpha contamination indicated high readings. In order to prevent any additional personnel contamination and to avoid the possibility of overwhelming the personal protective equipment limits a decision was made to exit the facility. Each team member processed through

the decontamination station individually and was decontaminated by a two person team composed of personnel from Disaster Preparedness. While processing through the decontamination station, some contamination was detected on the clothing and skin of some of the team members. The personal clothing was removed and disposed of in radioactive waste receptacles. All personnel on the site were requested to submit nasal swabs in order to determine if anyone had inhaled any radioactive material. The nasal swabs were screened that evening and the only individuals who indicated a positive result were the three team members who had entered Bldg 4060. Those individuals were sent to Mound Laboratories the following day for lung counting. Because the team had discovered levels of radioactive material significantly higher than would be expected, there was concern at this point that the material might represent a greater hazard than originally anticipated. In addition, the team had not had sufficient time to repackage the material and seal the drum before exiting the facility. Between the 6th of October and the 9th the Air Transportably Radiac Package (ATRAT) was summoned to provide more personnel and equipment, developed a plan for reentry to the facility, and procured an external, personnel air source to prevent contamination. On 9 Oct 86, Dr Swanson entered the facility wearing double layers of anticontamination clothing, triple layers of gloves and air supplied from a source external to the building. He proceeded to package the remaining material in a drum and to seal that drum. In addition, he did swipe surveys throughout the facility to determine whether the level of contamination had significantly increased. Results showed that there were much higher levels within the inner containment and in a path leading to the decontamination air lock. Other areas of the facility including the surfaces of other drums not inside the innercontainment did not show increased levels of contamination. In effect, the inner containment had performed its function and

prevented the spread of material throughout the building. Even so, the levels of contamination were far greater than anyone could have expected, in the one micro curie range. Subsequent analysis of the survey results revealed that current protective measures for personnel working in the building would not be acceptable and that increased engineering controls would have to be instituted.

On 10 Oct, the building was further sealed with expanding foam replacing the existing tape which had been used up to this point. During the period 10 Oct through 28 Oct, additional air locks were constructed to permit a two stage decontamination process. Special ventilators were purchased and installed in series to maintain negative pressure on the facility. Two ventilators in series were used to provide redundancy in case of failure of one of the ventilators. Bubble suits were evaluated to determine the most suitable type for working conditions involving extreme cold or heat, since both types of conditions were expected during this time of year. Personnel were trained in the use of the bubble suits. Continuous air monitors were installed in the decontamination stations. Banks of bottled air were installed to provide continuous air for teams who would be working to clean the facility. Special automatic sample analysis equipment was purchased and brought to the site to provide a real time analysis capability. Soil samples were taken which later correlated positively with samples taken by Oak Ridge. These samples indicated the presence of americium 241 near the building, but at levels well below the EPA limits used by the NRC in the Haynes clean-up operation.A command post was established and audiovisual equipment selected and installed to provide continuous monitoring of personnel working inside the facility and in both decontamination stations. Video recording equipment was also installed to provide a visual record of the clean up effort. On 10 Oct 1986 lab results

were received indicating that the contamination did not contain plutonium, only americium. This triggered much speculation of the possible source of americium. Team members suggested that the material may have been left over from the clean-up of an AFIT sealed source which had become deplated in the early 1970's. A request for a report on that clean-up operation revealed that the total source's strength would not have been sufficient to cause the levels of contamination experienced in Bldg 4060. Since a nuclear reactor had been used at Wright-Patterson during the 1960's it was considered possible that the americium may have been present as a result of some experiment which had not received proper documentation or been disposed of improperly. This line of thinking continued until approximately 21 October 1986 when Colonel Fox announced at one of the nightly staff meetings that he was in receipt of information from the Nuclear Regulatory Commission (NRC) that might link the americium to Mr J.C. Haynes in Newark Ohio. Mr Haynes had been convicted of improper use of a large amount of americium 241, some of which he allegedly gave to Mr James Lewis, Base Radiation Safety Officer in the 1970's. A report of the NRC's clean-up operation in Newark Ohio was obtained and reviewed.

On 24 Oct, the US NRC representatives from Region 3 arrived at Wright-Patterson to review the original clean-up procedures. They initiated a cease and desist order until they could bring their contractor (Oak Ridge Associated University) to Wright-Patterson to review the adequacy of operational procedures. Oak Ridge had been the contractor which assisted in the confiscation of Mr Haynes' americium in Newark Ohio in 1985. Oak Ridge personnel reviewed the Air Force's operational plan including methodology and equipment and stated that the clean up operation was conducted in an exemplary manner. With this information, and based upon survey results taken within the building under television

observation of NRC representatives, the NRC lifted it's cease and desist order and permitted the continuance of full clean-up operations. From late Oct 86 through 26 Nov 86 a number of major clean-up activities were accomplished. All insulation and other materials within the building were removed and containerized for shipment as LSA (low specific activity) waste. All existing and externally contaminated drums of radioactive material were overpacked into larger drums and removed to an empty munitions bunker for temporary storage. The entire inside of the building was thoroughly cleaned with special high efficiency filtered vacuum cleaners. When all possible contamination had been removed, the entire internal surface of the building was coated with a special strippable paint designed to keep any remaining radioactive materials from being resuspended and therefore becoming a health hazard. A large plywood and plexiglass structure was then constructed and placed inside Bldg 4060. In addition, a glove box was designed and constructed in one of the base model shops. Since the NRC and FBI had advised clean up personnel that Mr Haynes may have used highly volatile solvents in his operation, the glove box was constructed to allow the detection of potentially explosive atmospheres and was provided with a system to immediately neutralize any such condition. In effect, the repackaging operation was conducted inside a glove box which existed inside a structure which was contained inside a building. Each structure was maintained negative pressure with respect to its surrounding structure and this produced a three stage level of safety for the entire operation. Each overpacked drum was then brought back into the facility. The contents were inventoried, photographed, and segregated into approved disposal containers. Each drum was treated as if it contained large amounts of loose americium. At the completion of the repackaging operation, it was evident that only one drum (the one opened originally on 18 Sep 86) contained material which

did not originate at Wright-Patterson Air Force Base. All packaged waste was inventoried, certified, and shipped for authorized disposal at a low level radioactive waste burial site. After this shipment, which occured on 26 Nov 86, only seven drums of material from the Bldg 4060 clean up remained at Wright-Patterson. The remaining drums include biological waste, neutron sources, and some organic chemical waste, which would have been unsuited for burial at a disposal site. Additionally, they include one drum of americium contaminated materials and the initial drum which was determined to contain between 2.5 and 3.5 curies of americium. This drum requires disposal at a Department of Energy high level disposal site. The glove box was then removed from the building. The internal structure was stripped and placed in storage. The special radiological paint was removed from the floor along with major amounts of removable radioactive material which adhered to the paint. The floor was then repainted and the building placed in a condition which would keep any remaining radioactive materials in place throughout the winter.

In August 1987, the decision was made to allow final disposition of the building itself. A determination was made that disassembly and removal of the building would be the most efficient option. A DOD contractor initiated cleaning and disassembling procedures on 9 Sep 1987 operating under it's own NRC license with a plan approved by the US NRC Region III office. Prior to disassembling the building, the cement slab was stripped of paint and cleaned to the maximum extent possible. It was then completely resealed with paint. The building was then carefully disassembled. The cement slab was fractured into individual blocks and cleaned in a special sandblast booth with high efficiency filters and the sections surveyed for free release. These blocks

are currently located in the munitions storage area and meet the free release criteria accepted by the NRC.

Evaluation of the site has included a gridded radiological survey over the entire area where the slab had been, alpha surveys on all surfaces including the road in front of the building, and specific, large area surveys using a germanium spectrometry system. Results of these surveys continued to indicate that soil levels of Americium are either negative or well-below EPA screening levels. The NRC provided a verbal release of the site on 12 Nov 87 based upon initial radiological survey results. When soil sample results of the site have been analyzed and the final survey report submitted to the NRC, a formal release will take place. Currently, the building remains at Wright-Patterson completely encased in two sealed containers suitable for disposal. The entire site, although still enclosed in a secured munitions area, is radiologically sanitized and now has unrestricted access.

The biological waste remaining from the earlier decontamination, has been repackaged and is suitable for burial. The previously generated americium contaminated waste has been included with the disassembled building. The original americium drum containing about three curies remains at Wright-Patterson in a locked, alarmed vault. This material is awaiting shipment to an authorized DOE high-level waste storage site by special rail conveyance. Chemical wastes are being shipped to a licensed processing facility. The neutron sources will remain at Wright-Patterson until arrangements can be made for proper disposal.

Now I would like to discuss some concerns that the Committees have asked us to address. Specifically, I would like to discuss the health assessment, by the Air Force, of employees involved in the response and of the Boy Scouts, the alleged downplay of this situation by the Air Force in its reporting of this matter, and the inadequacy of the radiological inspection program at Wright-Patterson.

HEALTH ASSESSMENT

There were two primary precautions taken to ensure the health and safety of personnel involved in the clean-up effort. First, comprehensive evaluations of the work environment outside of building 4060 were conducted during and after all operations. These evaluations included air sampling, removable contamination sampling, perimeter FIDLER surveys, personal dosimeters, and checkpoint monitoring of all personnel leaving the site. Second, all personnel required to work in areas where contamination was present were given nasal swabs to determine if inhalation/ingestion had occurred. This sampling program was conducted to insure the adequacy of the personal protective equipment used. Positive nasal swabs triggered immediate lung counting at Mound Laboratory. Follow-up urine samples were used as an additional check of the adequacy of protective measures taken. It is important to note that, even under the unexpected and very high levels of Americium encountered on 6 October 1986, and during subsequent clean-up operations, the nasal swabs from three individuals were positive out of more than one hundred collected. These three positives were a result of the 6 October 1986 Americium release and were confined to the individuals present within the specially constructed inner containment.

BOY SCOUTS

Let me address the issue of the testing of the Boy Scouts. First, I want the committee to know that I am proud to have achieved Eagle Scout status myself. I am also the father of four children. I can assure the committee if there was the slightest potential for contamination of any area of the base where people visited, lived or worked, including the Boy Scout area, we would have restricted access to those areas. Before the incident was reported to me, the Deputy Base Bioenvironmental Engineer, Mr Dunn, accompanied by Lt Vincent, surveyed the area of the camp with a radiation detector and took a soil sample. Once we learned that the initial team had gone to the Boy Scout area and a mud puddle on base, Lt Col Swanson and Mr Ricci surveyed the area thoroughly using a very sensitive instrument. Dr Swanson and Dr Ricci checked the area where Mr Lewis's team washed their hands and also checked the remainder of the camping areas. None of the areas showed any radiation levels above natural background. An additional soil sample was taken on 20 Oct 86 which again showed no detectable radiation.

Nevertheless, several Boy Scout leaders, parents of Boy Scouts, and employees have expressed concerns over the potential for exposure. Since these people have concerns, the Air Force has concerns. As a result, we have offered testing to any Boy Scout who was present in the area on the weekends of 19 and 26 September 1986 and base employees who may also have concerns. We firmly believe that no person outside the facility was exposed to or contaminated by any Americium 241 and we are confident any testing performed will confirm this.

NOTIFICATION ISSUE

Let me address the allegations that the base was directed not to treat the incident as a release to the atmosphere or that there was no releasable radiation. At no time was I or any member of my staff directed or otherwise advised by AFLC to make a determination there was no releasable radiation. To my knowledge there were never any threats against any personnel under my command to withhold facts or to downplay the level of reporting this situation required. To help assure that nothing was underestimated I injected my Disaster Preparedness staff member into the process in order to play devil's advocate and to assist me in asking the tough questions. In fact, he contributed to my ability to ask probing and detailed questions in order to keep the team thinking clearly and with forethought about the situation. However, over a period of time his mannerisms caused friction. Although he advised us to declare this a "Broken Arrow," this was not appropriate because nuclear weapons would have to have been involved, which was not the case.

After careful consideration, we did declare the incident to be a "Faded Giant," incident defined in Air Force Regulation 127-4 as a nuclear reactor/radioisotope power system or minor radioactive source accident or incident." We filed a JOPREP JIFFY/OPREP-3 BEELINE report on September 26, 1986, which, under the Air Force reporting system, highlights a significant event to the Pentagon among others. We initiated a "Faded Giant" investigation which was completed by Air Force Logistics Command on October 20, 1986.

RADIATION SAFETY PROGRAM

The correction of inventory and facility problems regarding radioactive materials continues at Wright-Patterson today. Recent inspections have revealed unsatisfactory conditions which have not received sufficient commitment of resources. We are now working diligently to correct those problems.

First, a new Wright-Patterson AFB regulation has been written which assigns responsibilities and details the operational requirements of the radiation safety program. This regulation, which is currently in coordination establishes a new system of base level permits to strictly control authorizations for radiation sources permitted for use or storage by all base organizations.

The regulation also sets specific policy for notification and reporting of accidents and incidents and specifies emergency procedures to be used in response to all incidents. Formal notification procedures have been developed between Wright-Patterson AFB and the Ohio Disaster Services Agency to cover any situation involving radiological incidents. A system of informal exchange of information with the Ohio Department of Radiological Health for activities of interest has already been implemented. Finally, a current inventory is being developed to provide a basis for effective conduct of the base radiation safety program.

Moreover, specific response procedures are being developed through coordination between the base Radiation Safety Officer, Base Safety and

Disaster Preparedness. In addition, requirements for training, ordering and receiving procedures for radioactive material and radioactive waste inventory and disposal procedures have been included in the base regulation.

Yes, the Wright-Patterson program is unsatisfactory. The key to the success of this program is the personal integrity of the Radiation Safety Officer and better user practices. We have addressed both. With Dr Ricci now in charge, we are confident we are on the right track. Problem conditions have been identified to appropriate staff agencies for correction. Temporary duty personnel have been brought to Wright-Patterson AFB to assist in the correction of problems requiring immediate attention. Contractor assistance has also been obtained to assist in completing inventories.

CONCLUSION

The Department of the Air Force and Wright-Patterson AFB believe the protection of human health and safety is of paramount importance. We are committed to correcting the problems at Wright-Patterson and are reviewing our efforts to ensure that all materials on Wright-Patterson are managed properly and in compliance with Air Force and Nuclear Regulatory Commission requirements.

DEPARTMENT OF THE AIR FORCE

PRESENTATION TO THE SENATE COMMITTEE ON GOVERNMENTAL AFFAIRS

AND COMMITTEE ON ENERGY AND NATURAL RESOURCES

SUBCOMMITTEE ON ENERGY REGULATION

NOVEMBER 21, 1987

SUBJECT: AMERICIUM-241 LEAKS AT WRIGHT-PATTERSON AIR FORCE BASE

STATEMENT OF: Brigadier General Rufus M. DeHart
Director of Professional Affairs
and Quality Assurance
Office of the Surgeon General
United States Air Force

Not for publication Until Released by the
Senate Committee on Governmental Affairs and
Committee on Energy and Natural Resources
Subcommittee on Energy Regulation

Brigadier General (Dr.) Rufus M. DeHart is director of professional affairs and quality assurance, Office of the Surgeon General, Bolling Air Force Base, Washington, D.C.

General DeHart was born February 15, 1935, in Christiansburg, Virginia, and graduated from Radford (Va.) High School in 1953. He received a doctor of medicine degree from the Medical College of Virginia in 1965 and a master's degree in public health from the University of California, Berkeley, in 1967. He is a 1974 distinguished graduate of the Air War College resident program at Maxwell Air Force Base, Alabama.

The general entered the Air Force in January 1955 as an aviation cadet and completed training at Bryan Air Force Base, Texas, in April 1956. Following advanced training at Moody Air Force Base, Georgia, he was assigned, first, to the 76th Fighter Interceptor Squadron at Presque Isle Air Force Base, Maine, and McCoy Air Force Base, Florida, and later, to the 57th Fighter Interceptor Squadron, Keflavik Airport, Iceland, flying F-89s and T-33s. During this time, he served as a T-33 and F-89 instructor pilot and maintenance test pilot, and squadron instrument examiner.

Ending his initial tour in the Air Force in December 1959, he joined the Virginia Air National Guard, flying F-84F's, and entered the University of Richmond. He began medical school in 1961 and re-entered the Air Force in July 1964 as a senior medical student. After receiving his doctor of medicine degree, General DeHart completed an internship at the David Grant U.S. Air Force Medical Center at Travis Air Force Base, California, and the Aerospace Medicine Residency Program.

From July 1969 to August 1970 he was assigned to Korat Royal Thai Air Force Base, Thailand, as director, base medical service, and flew 160 combat hours in F-4E's. The general then was assigned to Beale Air Force Base, California, for three years as chief of aeromedical services and surgeon, 9th Strategic Reconnaissance Wing, in support of the SR-71 program. During this time he was a T-38 instructor pilot.

After completing the Air War College, General DeHart became director of base medical services at George Air Force Base, California, where he also flew F-4s. In July 1977 he was assigned to Headquarters U.S. Air Force, Washington, D.C., Office of the Surgeon General, as Chief of Flight Medicine. From August 1978 to October 1983 he served as chief of the Aerospace Medical Consultants Division, Headquarters Air Force Medical Service Center, Brooks Air Force Base, Texas. He then transferred to Hickam Air Force Base, Hawaii, and served as command surgeon, Pacific Air Forces. In October 1984 he was assigned to Langley Air Force Base, Virginia, where he served as command surgeon, Tactical Air Command. He assumed his present duties in January 1987.

General DeHart is board-certified in aerospace medicine and is a fellow of both the American College of Preventive Medicine and the Aerospace Medical Association. In 1977 he was selected as a consultant and in 1979 as a special assistant to the U.S. Air Force surgeon general for aerospace medicine. From 1981 to 1983 General DeHart served as a member of the Executive Committee of the Aerospace Medical Association and as chairman of the Aviation Safety Committee. He was president of the Society of U.S. Air Force Flight Surgeons from 1982 to 1983.

The general is a chief of flight surgeon and a command pilot with 3,500 flying hours. He has flown Air Force aircraft in every major command, as well as the Air National Guard. His military decorations and awards include the Legion of Merit, Bronze Star Medal, Meritorious Service Medal with one oak leaf cluster, Air Medal with three oak leaf clusters, Air Force Outstanding Unit Award with "V" device and Vietnam Service Medal with three service stars.

He was promoted to brigadier general June 1, 1985, with same date of rank. General DeHart is married to the former Mary Margaret McCord of Linden, Alabama. They have two sons, Rufus Marion and Marc McCord; and one daughter, Melanie Ann.

Mister Chairman and Members of the Committees:

I am pleased to appear before you to discuss the policy and responsibilities of the Air Force Radioisotope Committee.

I am Brigadier General Rufus DeHart, Director of Professional Services, in the Office of the Surgeon General, HQ U.S. Air Force and Chairman of the USAF Radioisotope Committee. As Director of Professional Services, I am responsible for establishing Air Force policy on control of potential hazards to personnel from uses of ionizing radiation. The U.S. Air Force Radioisotope Committee is an Air Staff level committee which provides administrative control of all radioactive material used in the Air Force except for nuclear reactors exempted from Nuclear Regulatory Commission (NRC) oversight under Section 91b of the Atomic Energy Act, nuclear weapons and components of those weapon systems. Through the Air Force Master Materials License, issued by the Nuclear Regulatory Commission to the USAF Radioisotope Committee on 26 June 1985, the NRC delegated to the Air Force authority to regulate use of NRC controlled radioactive materials on Air Force installations. The Committee conducts technical reviews of proposed materials use and exercises administrative controls to ensure that the receipt, possession, distribution, use, transfer and disposal of radioactive materials by Air Force organizations is in accordance with the Air Force Master Materials License. The Committee's full-time Secretariat Staff of three health physicists review all routine requests from Air Force organizations for use of radioactive materials and

issues USAF Radioactive Material Permits to qualified users. These permits are the Air Force equivalent of an NRC license. The Secretariat reviews the training and experience of designated radiation protection officers and individuals who use or supervise the use of radioactive material for which a Permit is required. Unusual cases are referred by the Secretariat to the full Committee for review and decision. The Committee acts as the single point of Air Force contact with the Nuclear Regulatory Commission or Agreement States on all aspects of licensing. The Committee also provides recommendations to the Surgeon General on uses of radioactive material and the control of ionizing radiation hazards. In support of a condition of the Air Force Master Materials License that the Air Force conduct compliance inspections of its permittees equivalent to those conducted by NRC of its licensees, the Director of Medical Inspection, Air Force Inspection and Safety Center, initiated inspections on 1 October 1985 to determine compliance with NRC regulations and conditions of USAF radioactive material permits. The Committee is provided copies of inspection schedules, inspection results and investigation reports. Consultation is also provided to the Committee on inspection policy, procedures and techniques. The NRC conducts oversight inspections at selected Air Force installations independently of Air Force inspection teams as well as an annual evaluation of Committee management of the Master Materials License. NRC inspectors also accompany Air Force inspectors at random to assess equivalency of Air Force inspections with NRC inspections.

Every significant incident or accident involving radioactive material is to be reported by using organizations and bases to Headquarters Air Force. Significant mishaps are categorized by the code name FADED GIANT. Those involving NRC regulated materials are to be reported to the Executive

Secretariat Staff of the USAF Radioisotope Committee and then, in turn by that Staff, to the NRC following NRC regulations.

Since the incident at Wright-Patterson, this reporting policy has been re-emphasized by letters both from the Committee and the Surgeon General to all bases, permittees and their parent Major Air Commands and Separate Operating Agencies. These letters state that it is imperative that any incident involving radioactive materials be immediately reported to appropriate base and higher headquarters authorities. It has been made clear that if uncertainty exists about whether an event constitutes a reportable incident, it is to be reported. Further, as a condition for continuation or issuance of a USAF Radioactive Material Permit, the Radioisotope Committee must have on file written certification by the applicant and the radiation safety officer that they have read, understand and will comply with reporting requirements for radioactive materials established in AFR 161-16, Control of Radioactive Materials and AFR 127-4, Investigation and Reporting U.S. Air Force Mishaps. These certifications are on file for each permit. The Committee Secretariat now has written operating instructions with a specific action checklist to be followed which provides expanded guidance on NRC reporting requirements to ensure future errors will not be made by the Secretariat Staff in application of NRC requirements.

The Committee has initiated action to systematically realign accountability for permit compliance (including reporting) with Air Force organizational lines of authority. In the past, the requirements for submission of NRC license applications for radioactive material usage through medical channels to the NRC led to applicants and subsequent holders of some NRC licenses to be, in some

instances, medical facility commanders with no direct authority over non-medical activities using the materials. We are replacing these medical facility commanders with appropriate individuals who have clear authority over the permitted activities. This action has been completed at all but one of the affected installations.

The Inspector General has emphasized inspection of procedures for radioisotope inventory and waste management Air Force wide during routine permit compliance inspections using a detailed inspection checklist developed specifically for this area of concern. Qualified health physicists are also annually inspecting selected permittees with significant radiological activities to review storage and inventory procedures using the Inspector General checklist. In consultation with the NRC, methodology will be developed to limit a single individual from accepting radioactive materials for addition to the permitted organization's radioactive material inventories. Also, our methodology for accountability will be strengthened to include periodic local audits by disinterested parties. These new procedures were discussed in a letter to HQ NRC, Office of Inspection and Enforcement, in March of this year.

In response to Governor Celeste's letter expressing his deep concern that State Officials were not notified of the incident, a specific agreement was developed between Base and State Officials regarding notification to the State of any future accidents and the Air Force is committed to fulfilling its part of that agreement. Additionally, Air Force wide guidance is being incorporated in a revision to the regulation governing control of radioactive material to provide for notification of State radiological control authorities in event of other mishaps anywhere within the United States, which involve actual or potential

exposure to populations or unplanned or accidental release of radioactive materials into the environment. Specific criteria for reporting paralleling that for reporting to the NRC are identified in this guidance.

Regarding questions surrounding draft versions of the letter of 20 Jan 87 from Secretary of Defense Weinberger to Governor Celeste: HQ USAF was tasked by the Air Force Secretariat who had been tasked by the Department of Defense Secretariat to draft a response to Governor Celeste's letter of 19 Nov 86 concerning the incident involving radioactive contamination. The Surgeon General's staff then requested a coordinated draft response from HQ AFLC and the AF Radioisotope Committee Secretariat.

The first draft was forwarded by telefax from HQ AFLC to HQ USAF (Surgeon General) on 1 Dec 86. This draft was forwarded by HQ USAF/SGI to SAF/LLI (Legislative liaison). SAF/LLI redrafted the letter and forwarded it after several iterations based on other Air Force Secretariat inputs to the office of the Secretary of Defense about 10 Dec 86.

Due to concerns about the lack of specificity of any environmental contamination external to the storage building 4060, the AF Secretariat asked for more specific words regarding possible contamination outside the storage building. Based on verbal input from HQ AFLC concerning negative radiation survey data around building 4060, the Surgeon General's staff provided suggested additional wording to Secretary of the Air Force, Deputy for Environment, Occupational Health and Safety (SAF/MIQ) about 5 Jan 87. SAF/MIQ in turn assisted SAF/LLI to redraft the letter and submit it to DOD on 13 Jan 87 in its final form for signature by Secretary Weinberger.

The letter to Governor Celeste from Secretary of the Air Force Aldridge on 2 Mar 87 outlined steps that the Air Force was taking to improve our management of isotopes. This letter was drafted in the office of SAF/MIQ (now SAF/RIQ), Mr Gary Vest. Some input was made to this letter in Mr Vest's office by staffers from HQ USAF/SGPA and the USAF Radioisotope Committee.

The Department of the Air Force takes our responsibilities under the Master Material's License very seriously and recognizes the need to protect the health and safety of the American people. We will continue our long standing emphasis on regulatory compliance in our handling of radioactive materials.

STATE OF OHIO

ADJUTANT GENERAL'S DEPARTMENT

2825 WEST GRANVILLE ROAD
WORTHINGTON, OHIO 43085-2712

STATEMENT

I am James R. Williams, Chief of Staff of the State of Ohio Disaster Services Agency. I would like to present this Statement relative to the series of events at Wright-Patterson Air Force Base involving the release of Americium 241 and the subsequent contamination of persons and areas in the vicinity of the Air Base.

Let me first begin by briefly presenting Ohio's response mechanism and organization for managing radiological incidents. There are two agencies at the State level which have the qualified personnel and ability to deal with nuclear incidents, the Ohio Disaster Services Agency and the Ohio Department of Health. In this regard, the Disaster Services Agency is the emergency action element to do investigative response to make initial evaluation, control the scene, obtain data and preserve public safety. The Ohio Department of Health Radiological Health Section is responsible for the health and safety of the public in these incidents and utilizes the data from Ohio DSA to evaluate the long-term hazards, and take the appropriate action or advise the local governments on action to be taken. In both agencies, there are qualified, trained personnel. In DSA, these persons use an extensive inventory of equipment to measure levels of radioactivity and determine safe or unsafe conditions. There are 14 persons available for 24-hour duty, some of whom are located around Ohio's nuclear power plants. The Health Department has a qualified staff capable of using data generated by Ohio DSA to evaluate the health hazard.

Historically, we have investigated an average of 26 incidents per year since 1974. Among these was the largest documented case of contamination in the U.S. in Licking County, Ohio (not the J.C. Haynes case). We have searched hundreds of miles of roadway for lost sources, gone to the bottom of mines and other areas of the coal industry; recovered sources from homes and factories and conducted radiation surveys of transportation incidents.

We have standing agreements with the U.S. Department of Energy and U.S. Nuclear Regulatory Commission to investigate on their behalf, at their request, nuclear incidents in the State of Ohio. Jointly, we have safely handled or resolved many incidents in Ohio. In this regard, we participated with the NRC in the 1985 raid on the Haynes property to recover the Americium 241. Our personnel provided the radiation survey teams for the raid and

escorted the recovered material to Mound Laboratory in Miamisburg, Ohio. We also provided survey teams in the decontamination and clean-up of the Haynes property. We have always had an excellent relationship with both of these federal agencies.

Ohio was initially informed of the Americium incident at the Air Force Base by the NRC in late October 1986. The State and Local Governmental Affairs Offices called Ohio to make the notification which was followed by a news release by NRC.

Upon receiving this notice, the Governor was notified by Ohio Disaster Services Agency. It is important to note that the NRC was not notified by the Air Force, a fellow Federal agency, until well after the fact (the incident occurrence September 18, 1986). The NRC is recognized as the licensing and control agency for nuclear materials by the Air Force.

After learning of the implications of this event upon Ohio citizens who work at the Base and the potential environmental impacts, the Governor began a series of correspondence with Secretary Weinberger to protest the lack of notification and involvement for the State by the Air Force. The State has a deep concern for our citizens who work at the Base, as well as those in adjacent areas. There are hundreds of retired persons who visit the Base for services and supplies in addition to the citizens' groups who avail themselves of the civil affairs activities offered by the Base.

Our deep concern stems from the interpretation of "minor event" as apparently defined by the Dept. of Defense or the Air Force. A "minor" event, which causes over a million dollars in clean-up costs, demolishes a building and contaminates workers at the Base, is certainly significant. If this is "minor", it would take a catastrophe to be a major event. In any case, a definition of minor event needs to be developed in a working agreement between the State and the Air Force, or we must conclude that the State will never be informed of anything of significance at the Base which affects Ohioans working there and living in the vicinity.

An agreement was made between the Base and Ohio Disaster Services following the incident to notify DSA whenever an incident occurred which caused the activation of the Base Disaster Response Team. While the ensuing clean-up of the AM 241 incident did not involve the Disaster Response Team, a number of the events have had the interest of the State and citizens and could have been communicated or closely coordinated. I believe this all stems from the definition, or lack thereof, of "minor incident".

This is not to say that all relationship has been bad between Ohio Disaster Services Agency and Wright-Patterson AFB. In many cases, we have used instrumentation provided by the base for detection of radioactive sources and the base has radiation survey meters provided by DSA. Additionally,

close emergency planning work continues between the emergency planning staff of our agencies.

There are implications brought forth by this incident that could be precedent-setting. DOD installations at WPAFB, Defense Construction Supply Center in Columbus, Newark Air Force Base Station in Newark and the Defense Electronics Supply Center in Dayton could have a problem in radiation or hazardous materials and under the loose, current arrangement never coordinate with the State.

Further, when radioactive materials are shipped from WPAFB, the State has little, if any, notice or knowledge of these shipments. It will be especially helpful to know the disposition of the material contaminated by the Americium 241.

These issues, which have resulted from the incident, are high in our regard and deserve close attention. We at DSA stand ready to deepen our working relationship on the technical and professional level to insure the safety and well-being of those work on and live near, those vital installations in Ohio.

I will be happy to answer any questions you may have.

JAMES R. WILLIAMS
Brigadier General OHARNG
Chief of Staff
Ohio Disaster Services Agency

Attorney General
Anthony J. Celebrezze, Jr.

TESTIMONY OF

E. DENNIS MUCHNICKI

CHIEF, ENVIRONMENTAL ENFORCEMENT SECTION

OFFICE OF OHIO ATTORNEY GENERAL

ANTHONY J. CELEBREZZE, JR.

November 21, 1987

State Office Tower / 30 East Broad Street / Columbus, Ohio 43266-0410

83-464 0 - 88 - 5

Senator Glenn, Senator Metzenbaum. I am Dennis Muchnicki Chief of the Environmental Enforcement Section for Ohio Attorney General Anthony J. Celebrezze, Jr. Attorney General Celebrezze asked me to express his regrets at being unable to attend today's important hearing. The issue which brings us here is another example of a problem which Attorney General Celebrezze has discussed previously with both of you. That problem is the continuing pattern of irresponsible behavior demonstrated by federal facilities concerning environmental contamination which results from the operation of those federal facilities.

Last Spring, Attorney General Celebrezze testified before Senator Glenn's Government Operations Committee concerning the numerous violations of Ohio's environmental laws which are occurring at the Department of Energy facilities in Ohio. Today's focus is on the Department of Defense, specifically, the Air Force and its dangerous and improper handling of hazardous and radioactive materials at Wright Patterson Air Force Base. Attorney General Celebrezze believes that the recent incidents at Wright Patterson are another example of the need for independent regulation of the environmental impact of activities at federal facilities. The theory of "presidential accountability", repeatedly espoused by both the President and U.S. Attorney General Meese as the answer for federal facilities violations of environmental laws, is simply not

working. The need cannot be denied for an active enforcement presence by State officials who are not constrained by potential conflicts of interest. Thus, Attorney General Celebrezze appreciates your efforts to create statutory mechanisms which clearly and unambigiously subject federal facilities and federal officials to state enforcement of violations of environmental laws.

The americium spill at Wright Patterson is only one in a series of actions at Wright Patterson which have potentially serious environmental contamination consequences. For example, just last summer the Director of Ohio EPA, in conjunction with the Attorney General, issued orders to Wright Patterson to begin a study and clean up of numerous hazardous waste disposal areas on the base which are potentially contaminating the regional aquifer system. The issuance of orders by the Director of Ohio EPA was made necessary after year-long attempts by Attorney General Celebrezze to negotiate with Wright Patterson to develop a meaningful schedule for cleaning up the numerous waste disposal sites on the base. During that time, base representatives refused to move forward with a clean-up unless state officials surrendered authority to determine the adequacy of that clean-up. In addition, rather than complying with the Director's orders, the Air Force appealed those orders and is vigorously contesting their validity. The attorneys from Mr. Celebrezze's Environmental

Enforcement Section will soon begin a prolonged hearing before the Ohio Environmental Board of Review concerning Wright Patterson's challenge to the Director's authority.

Interestingly enough, one of the arguments which the Air Force is making in that case is that they shouldn't have to clean up disposal sites at Wright Patterson because they have contaminated so many other sites throughout the United States much worse than they have contaminated Wright Patterson. That type of statement only adds greater weight to the need for regulation and strong enforcement.

More recently, the Ohio EPA has reported to us that OEPA caught the Base's contractor disposing of waste materials without providing Ohio EPA an opportunity to review the types of materials involved and the Base's plan for disposal. The Air Force's failure to notify Ohio EPA was in violation of an understanding which existed between the base and Ohio EPA. When viewed in light of these other activities, the recent americium spill demonstrates that the Department of Defense has as poor a track record of concern for the environment as the Department of Energy facilities mentioned earlier.

Attorney General Celebrezze's most serious concern about the americium spill is that we know so little about what really happened. Despite the fact that there has supposedly been an on-going federal investigation for well over a year, we still do not know how much americium was involved, and even more

importantly, where that americium came from. Is this the same americium that was being illegally handled by a jeweler who lives near Newark, Ohio, and was engaged in questionable use of americium? If it is, how did the materials get from Newark to the Air Force Base? If it isn't, where did this americium come from? Who within the Air Force is to be held accountable if government personnel were helping a private individual in his illegal handling of americium?

Based on information available to date, Attorney General Celebrezze is concerned that there may have been a violation of Section 4163.07 of the Ohio Revised Code. That provision of Ohio law requires any person shipping or transporting "large quantities" of radioactive materials to notify the Ohio Diasters Services Agency before those materials are shipped in or through the State of Ohio. From the preliminary reports which we have reviewed, if the americium was shipped from Newark to Wright Patterson, the quantities involved were probably sufficient to trigger this pre-notification requirement. If that is the case, the failure to provide that notification is a third degree felony under Ohio law.

Determining with certainty the quantity of americium involved is an important legal question. Attorney General Celebrezze will work with all federal, state and local authorities who are trying to answer this question. One mechanism to assist in that effort could be the impanelment of

a special grand jury, as provided for in O.R.C. Section 2939.17. Should this provision be invoked, Attorney General Celebrezze will work cooperatively with all governmental agencies in conducting this type of investigation.

In closing, I want to again express Attorney General Celebrezze's appreciation at being asked to attend today's hearing and his regrets for being unable to appear personally. This entire matter, as well as the additional concerns about the lack of compliance by federal facilities with our environmental laws, is very troubling. Perhaps this hearing can be an additional boost in the effort to bring about reform.

Thank you.

5994E

HEALTH SERVICES

MANAGEMENT INSPECTION

FIELD MEMORANDUM

USAF MEDICAL CENTER, WRIGHT-PATTERSON
WRIGHT-PATTERSON AFB, OHIO
DATES OF INSPECTION: 20 Sep-1 Oct 87

This is a PRIVILEDGED DOCUMENT
It will not be released in whole or in part outside the Air Force without approval of the Inspector General, USAF

HEADQUARTERS
AIR FORCE INSPECTION AND SAFETY CENTER
MEDICAL INSPECTION DIRECTORATE
NORTON AFB, CA. 92409

FINDING WORK SHEET

FUNCTION/TAB: Radioactive Material Inventory, Storage & Waste Management	DATE: 21-24 Sep 87	REVIEWER:
INSPECTOR: David R. Case, Lieutenant Colonel, USAF, BSC	BASE/UNIT/COMMAND: USAF MED CEN, WPAFB	FINDING REVIEW:
VALIDATED WITH: Maj Donnelly, Lt Col Swanson	CORRECTABLE BY UNIT:	ANSWER TO IG:
CONTACTED: Maj Ricci		

(GAA) RADIOACTIVE MATERIAL INVENTORY, STORAGE, AND WASTE MANAGEMENT WERE UNSATISFACTORY.

a. Radioactive materials were stored in several user areas on Wright-Patterson AFB. Major areas included the USAF Medical Center's Department of Nuclear Medicine and Bioenvironmental Engineering services, and the Air Force Institute of Technology. Other users included the Air Force Wright Aeronautical Laboratories, the Armstrong Aeromedical Research Laboratory, and the Naval Medical Research Institute..

b. Procedures, established by base regulation, to control radioactive materials employed a permitting system for base users under the authority of a type A broad scope USAF Radioactive Material Permit. Certain other users, particularly nuclear medicine, were specifically permitted. Nevertheless, these procedures had not been effective in preventing the acceptance of major quantities of unauthorized americium and the possession of significant quantities of radium and accelerator produced material without an Air Force Radioactive Material Permit.

c. Records of material on hand (inventories, etc.) had not been updated for almost three years for most base activities. Medical Center records were proper.

d. Accountability and location for at least one neutron source containing plutonium could not be conclusively established during the inspection.

e. Certain storage areas, particularly building 470, provided opportunities for unescorted access to source storage containers, and had direct evidence of exposure of sources to water through leakage.

f. Many containers used to store radioactive materials, especially in building 470, exhibited illegible, deteriorated or incomplete labeling to identify nuclide, quantity of radioactivity, and/or date.

g. Many items in storage in building 40 were not labeled and contents were unidentified. Recently developed inventory lists for this room were admitted to be incomplete and possibly incorrect.

h. Many sources had been on-hand for more than twenty years and had no readily identifiable use.

i. Radioactive wastes were routinely stored by Nuclear Medicine and Bioenvironmental Engineering. Nuclear Medicine wastes, consisting of short lived radionuclides, were either properly returned to the vendor or properly disposed by decay in storage.

j. A former consolidated waste area had been contaminated by a major incident about one year ago. Aggressive action since then had disposed of most material, and the remainder (including the structure) was packaged for disposal.

k. The presence of many old, unused, and/or identifiable sources indicated the lack of an aggressive program to identify and dispose of excess materials as radioactive waste.

l. An annual review of radiological waste activities had not been conducted and presented to the radiation safety committee (RSC) or the Aeromedical Council.

ACTIONS RECOMMENDED

m. Recommend the RPO, in conjunction with the RSC, revise procedures and implement programs to improve the control and disposal of radioactive materials on this base.

n. The RPO, in conjunction with users, should initiate an active program to identify all radioactive materials no longer required and request the assistance of experienced waste disposal experts through the Air Force radioactive waste manager to identify, package, and broker these items for disposal.

o. Management, including the RSC, the medical center commander, the base commander, and MAJCOM should take actions to ensure that sufficient staffing and support resources are provided to allow execution of an effective program.

1986 NOV 21 AM 12 37
OFFICE OF THE SECRETARY OF DEFENSE

RICHARD F. CELESTE
GOVERNOR

STATE OF OHIO
OFFICE OF THE GOVERNOR
COLUMBUS 43266-0601

November 19, 1986

The Honorable Caspar W. Weinberger
Secretary
U.S. Department of Defense
The Pentagon
Room 3 E 880
Washington, D.C. 20301

Dear Mr. Secretary:

On September 18, 1986, at approximately 1:30 a.m., an incident involving radioactive contamination occurred on the grounds of the Wright-Patterson Air Force Base located in Dayton, Ohio. According to a news release issued by the U.S. Department of Energy [see attachment], the contamination resulted from the opening of an unmarked drum containing Americium-241.

Although the exposure took place in a remote area of the base, a probable threat to the health and safety of Ohio residents in proximity to Wright-Patterson existed. Fortunately, neither the workers handling the material nor local citizens were affected by the radioactive material.

My complaint is that the incident was not reported immediately to this office or the Ohio Disaster Services Agency until more than one full month had expired. Surely, this type of contamination represents a matter of urgency. Prompt notification to appropriate state officials should be priority number one. Why the laxity by the Department of Defense and the Department of Energy?

Additionally, during the last several years, numerous incidents at various locations throughout Ohio have given me, the state's chief executive officer, cause for alarm. Just recently, at the Westinghouse Feed Materials Production Center in Fernald, 300 pounds of uranium trioxide was spilled. This mishap is but one incident in a continuing series of problems associated with the Fernald plant. The plant at Piketon, managed by the Goodyear Atomic Corporation, is another offender. Now comes the Wright-Patterson development.

45766

When will the federal government take the necessary steps to control the haphazard use of radioactive materials, the transport of spent fuel from nuclear power plants, and monitor more closely those entities licensed or vested with the authority to handle such damnable substances? My outrage is evident because the people of Ohio deserve better protection from the federal government's inadequate utilization and supervision of radioactive products. Certainly more timely notification can be expected.

As governor, I must formally protest the almost casual manner in which such dangerous material is produced, used, and disposed. If the production and use of radioactive substances are required to enhance America's quality of life through commercial and military applications (an assumption to which I do not subscribe), then improved methods must be devised by you and President Reagan in order to safeguard the health and general welfare of Ohio citizens.

What message can you convey that might suggest that the Department and other relevant agencies will ensure the protection of life, limb, and property of the residents of Ohio? I await your prescriptive reply.

Sincerely,

Richard F. Celeste

Richard F. Celeste
Governor

cc: President Reagan
Senator John Glenn

THE SECRETARY OF DEFENSE

WASHINGTON, THE DISTRICT OF COLUMBIA

20 JAN 1987

Honorable Richard F. Celeste
Governor of Ohio
Columbus, OH 43266-0601

Dear Governor Celeste:

Thank you for your recent letter regarding the radioactive material incident at Wright-Patterson AFB, Ohio. Let me begin by assuring you that I share your concern for the need to protect public health against accidental releases of toxic wastes.

In this particular case, special circumstances mitigated the need for notification/response of civilian agencies. An inspection of radiologically contaminated waste containers was being made by base radiation safety personnel for the express purpose of developing disposal procedures for those materials. During that inspection, the release of negligible amounts of Americium-241, the primary contaminant, occurred but was contained entirely within a totally enclosed building space. Extensive sampling and analysis confirmed that no contamination had escaped to the outside and, hence, no "environmental release" had occurred. Thus, the Nuclear Regulatory Commission (NRC) news release correctly stated that the material confined to the storage facility "does not represent a hazard to the public or to personnel on the base." Had this incident posed a danger to any individuals, our procedures call for prompt notification of all cognizant agencies to enable all necessary and timely responses to the incident. Please be assured that, had the circumstances warranted notification, the appropriate state agencies would have been notified immediately.

To date, in conjunction with procedures coordinated with NRC and the Department of Energy (DOE), we have removed all but six drums of the contaminated materials to the approved low-level burial facility at Hanford, Washington. The procedures for disposal of the remaining drums is being developed between the Air Force, NRC, and DOE. In the interim, the building has been secured until final disposal actions have been completed. The Department of Defense and the Department of the Air Force share your concern for the protection of public health. We will do all in our power to cooperate with and support your state programs to protect environmental safety and public health.

I have taken the liberty of forwarding your letter to the Secretary of Energy for his consideration. I trust you will find this responsive to your inquiries.

Sincerely,

Caspar Weinberger

cc: Secretary of Energy

CRAIG HOSMER
MEMBER OF CONGRESS
CALIFORNIA

COMMITTEES:
JOINT COMMITTEE ON
ATOMIC ENERGY
INTERIOR AND INSULAR AFFAIRS

Congress of the United States
House of Representatives
Washington, D.C. 20515

August 13, 1971

Mr. Robert D. O'Neill, Director
Office of Congressional Relations
U. S. Atomic Energy Commission
Washington, D. C. 20545

Dear Bob:

I am enclosing a letter from a constituent, Mr. Alvin O. Wink, who has written me on behalf of his son-in-law, Mr. John C. Haynes of Newark, Ohio.

Mr. Haynes is desirous of obtaining a license from the Commission to use radioactive materials in his process to artificially color diamonds.

I would appreciate your checking into this matter and advising me if Mr. Haynes can qualify for the necessary licenses and how he might go about obtaining same. The letter references his previous contacts with the Division of Materials Licensing.

With best regards.

Very truly yours,

Craig

CRAIG HOSMER
Member of Congress

CH:jmy
Enclosure

LAKEWOOD, CALIF.
Aug. 7,1971

Hon. Craig Hosmer, Congressman
Security Bank Building
Long Beach, Calif.

My Dear Congressman:

As a former constituent,and long time admirer,I decided to write to you about something which I hope will interest you,as a ranking member of the Atomic Energy Commission, and which I hope will appeal to your humanitarian instincts.

Four years ago a young man with only a ninth grade education applied for,and received,patents on a process for artificially coloring diamonds.In the intervening years he has faced, and overcome obstacles which would have put many less determined men under.At long last, it appears that the end is in sight.If he can just get a few breaks, he might be able to start deriving a few benefits from his inventionbefore he comes apart.

Most of his problems stem from the fact that he has had to depend on others to do his coloring and experimenting, since it involves the use of radioactive material,and he doesn't have a license.After several disappointments, and considerable expense, involving several trips to Washington, and personal interviews with Mr. Cecil Buchanan, and others in the Materials Branch, Division of Materials Licensing, he has managed to get an experimental license- and has finally reached the point where he has colored diamonds on his own, in a laboratory which he built and equipped himself! He has more than proven his knowledge and ability, and the only thing that is standing in his way now is a technicality- he needs a license! And he needs the blessing of the Atomic Energy Commission! He now has approximately three months of documented experience- and in the intervening years he has gained many more months of experience which can not be certified because certain individuals are using this as a means of trying to get a piece of the action.

The young man I refer to is Mr. John C. Haynes of Newark, Ohio- and my son in law. I have just returned from a visit with him, and he has become a desperate man in his struggle to get this thing off of the ground. He had hopes of getting in on the Christmas trade this year,but there is no hope, unless some technicalities can be short-circuited,in the interest of justice.I'm certain that, given the oppertunity,he can prove himself fully capable and able to operate entirely on his own, but he urgently needs someone to intercede for him. He is fiercely independant, and literally afraid to trust(or depend on) anyone, any more. As I understand it, he now needs an operator's license, a Rad*Health Officer's license, and the blessing of the Atomic Energy Commission. In the interest of rescuing a man who is about to come apart, can you help? I will be glad to answer any further questions which you may have, if you can see your way clear to help this very deserving young man.

Sincerely yours,

Alvord O. Wink
6139 Whitewood Ave.
Lakewood, Cal. 90712
Phone To 7 3026
Bus. 547-6451

SEP 10 1971

Honorable Craig Hosmer
House of Representatives

Dear Mr. Hosmer:

This is in response to your letter of August 13, 1971, concerning the interest of Mr. Alvin O. Wink in licensing matters relating to his son-in-law, Mr. John C. Haynes of Newark, Ohio. The John C. Haynes Company of Newark, Ohio, has, for more than a year, held an AEC license authorizing possession of americium 241 for the irradiation of diamonds to produce coloration.

As you know, americium 241 is a highly toxic alpha emitter. It is our understanding from Mr. Haynes that the diamonds must be placed in a device which permits direct contact with the americium 241 in order to produce the desired coloration. This process is likely to result in contamination of diamond surfaces.

Existing AEC regulations do not provide for the exempt distribution of jewelry contaminated with radioactive material. Our policy has been to prohibit the incorporation of radioactive material into items such as toys, novelties, and adornments since it appears to be of such marginal benefit.

Mr. Haynes has been told that he might not be granted authority to distribute his colored diamonds unless a process is developed which results in a contamination-free product. His current license permits him to proceed with a development program for such a process. On September 2, 1971, Mr. Haynes submitted a proposal to begin distribution. We have not made a final determination on his application.

You can be assured that Mr. Haynes' proposal will be given our fullest consideration.

Sincerely,

Original Signed by
Stephen H. Hanauer
for Harold L. Price
Director of Regulation

JOHN M. ASHBROOK
17th District
OHIO

306 Cannon House Office Building

COMMITTEES:
EDUCATION AND LABOR
INTERNAL SECURITY

Congress of the United States
House of Representatives
Washington, D.C. 20515

September 27, 1971

Mr. Robert O'Neill, Director
Congressional Relations
U.S. Atomic Energy Commission
Washington, D.C. 20545

Dear Mr. O'Neill:

I have recently been contacted by Mr. John C. Haynes of the John C. Haynes Company, Newark, Ohio, concerning his application for amendment to License No. 34 13 774 01. According to the copies of the correspondence he provided me, this application was submitted on March 22, 1971.

It would be appreciated if you could furnish me with a status report on this application.

Thanks in advance for your assistance and I will look forward to hearing from you at your earliest convenience.

Sincerely,

John M. Ashbrook
Representative to Congress
17th District

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

OCT 5 1971

Honorable John M. Ashbrook
House of Representatives

Dear Mr. Ashbrook:

This is in response to your letter of September 27, 1971, concerning the status of an application for an amendment to a license held by the John C. Haynes Company, Newark, Ohio.

Favorable action was taken on the application dated March 22, 1971, referred to in your letter. Amendment No. 1 to the license was issued on May 18, 1971, and is reflected in one of the attachments to your letter. However, Mr. Haynes submitted another application September 2 which is presently under review.

As you know, this Company has for more than a year held an AEC license authorizing possession of americium 241 for the irradiation of diamonds to produce coloration. This radioactive element is a highly toxic alpha emitter. It is our understanding from Mr. Haynes that the diamonds must be placed in a device which permits direct contact with the americium 241 in order to produce the desired coloration. This process is likely to result in contamination of diamond surfaces.

Existing AEC regulations do not provide for the exempt distribution of jewelry contaminated with radioactive material. Our policy has been to prohibit the incorporation of radioactive material into items such as toys, novelties, and adornments since the use appears to be of marginal benefit.

Mr. Haynes has been told that he may not be granted authority to distribute his colored diamonds unless a process is developed which results in a contamination-free product. His current license permits him to proceed with a development program for such a process. In the September 2, 1971 application, Mr. Haynes proposes to begin distribution. We have corresponded with him regarding his procedures for

decontaminating the diamonds and for ensuring that no contaminated diamonds are released. We shall be able to make a final decision when these questions are resolved.

You can be assured that Mr. Haynes' proposal will be given our fullest consideration.

Sincerely,

(signed) Harold L. Price

Harold L. Price
Director of Regulation

DISTRIBUTION:
Addressee (2)
Secretariat (2)
General Counsel (2)
Cong. Relations (2)
HLPrice, DR
CLHenderson, DR
HKShapar, OGC
Gladys Ertter, DR (#3761)
RECunningham, DML
DR R/F
DML R/F
St. Br. Dist.

Description of 1970 Atomic Energy Commission (AEC) licensing procedures

In 1970, an applicant proposing to use radioactive material applied to AEC for a license. It was reviewed by the AEC technical staff and, if found acceptable, a license was issued. If the application was deficient, the applicant had to correct the deficiencies before the license could be issued. An applicant had to demonstrate that: (1) the proposed activity was for a purpose authorized by the Atomic Energy Act, (2) his equipment and facilities were adequate to protect health and safety, and (3) his personnel were qualified by training and experience to use radioactive material safely.

There were no specific written guidelines as to what constituted an acceptable application, particularly in the area of training and experience, for the less common proposals such as the J.C. Haynes application. Normally, it was left up to an individual technical reviewer to determine whether a license application was acceptable. Often general statements from applicants on training and experience were accepted by AEC.

Description of current NRC licensing procedures

As was the case in 1970, an applicant must apply to NRC for a license to use radioactive material. However, as stated in Mr. Hugh Thompson's testimony of November 21, 1987, there have been several changes in licensing requirements since 1970. These are as follows, with certain attachments:

1. NRC has written guidance on the information which must be provided by applicants. Applicants are questioned more specifically about the location, nature, time, and length of their training and experience. (See RG-10.7, "Guide for the Preparation of Applications for Licenses for Laboratory and Industrial Use of Small Quantities of Byproduct Material").

2. NRC staff more frequently visits applicant's facilities to assess first-hand the equipment and personnel. (See Policy and Guidance Directive 84-9, "Licensing Visits for Material Licensees"). Furthermore, NRC has established an Office of Investigations, which investigates cases of apparent wrongdoing and material false statements.

3. Waste disposal facilities for americium are currently very limited. Prior to licensing a facility to possess large quantities of unsealed americium, the waste disposal issue would have to be addressed. Also, NRC is completing action on a rulemaking which would require financial assurance for decommissioning facilities such as the J. C. Haynes facility. (See Part 30 proposed rulemaking, "Decommissioning Criteria for Nuclear Facilities").

4. Emergency planning requirements have been established. Facilities such as the J. C. Haynes facility would not meet the requirements, which include alarms, safety systems, and methods to notify offsite officials. (See NUREG-0767, "Criterial for Selection of Fuel Cycle and Major Materials Licenses Needing Radiological Contingency Plans"; and NUREG-0762, "Standard Format and Content for Radiological Contingency Plans for Fuel Cycle and Materials Facilities").

Department of Energy
Oak Ridge Operations
Post Office Box E
Oak Ridge, Tennessee 37831

December 28, 1987

Honorable Howard M. Metzenbaum
United States Senate
Washington, DC 20510-35-02

Dear Senator Metzenbaum:

During the Joint Field Hearing before the Senate Committee on Governmental Affairs and the Senate Committee on Energy as represented by Senator Howard Metzenbaum, on November 21, 1987, in Dayton, Ohio, Mr. Joseph A. Lenhard of my staff appeared to review procedures currently in effect at the Department of Energy's (DOE) Oak Ridge National Laboratory (ORNL) associated with the sale and distribution of radioisotopes.

The Committees indicated a concern about the adequacy of procedures, and Mr. Lenhard responded that I had instructed him to conduct a review of existing procedures to determine if improvements could be made. Since current procedures are based on Nuclear Regulatory Commission requirements governing transactions between licensees, our review included participation by representatives of the Nuclear Regulatory Commission. The Committees requested that the results of our review be provided to the Committees within 30 days. By this transmittal and attachments, we are responding to that request.

In a related issue brought up during the hearing, Mr. Lenhard was requested to review our historic files to determine if Mr. J. C. Haynes had personally picked up two orders for americium-241 during 1971. The shipping records covering that period of time have been discarded. That action was consistent with record management procedures in effect at that time, which specified a six-year retention period. Thus, we have been unable to clarify this point. While the majority of shipments over the years have been made by commercial carrier, regulations in effect at the time would have permitted the release of the material directly to Mr. Haynes. Current regulations would not permit release of a shipment to an individual or an individual's representative, unless that mode of shipment is specified in the license issued by the appropriate regulatory body.

As a result of our overall review of procedures and practices, a number of recommendations were made. We have reviewed the recommendations and have advised ORNL to examine and modify their procedures to achieve improvements where practicable. As a minimum, full implementation of recommendation one through four summarized in Enclosure 1 will be achieved within 90 days. Item five of Enclosure 1 identifies a potential problem which will require further study. We will keep the Committees advised of our progress in this regard.

Enclosure 2 is a copy of the full review including all findings and recommendations.

This letter, with enclosures, is also being sent simultaneously to Senator Johnston, Senator McClure, Senator Glenn, and Senator Roth.

We appreciate the opportunity to be represented at the hearing and hope that this information will satisfy the request of the Committees.

Sincerely,

Joe La Grone
Manager

Enclosures

cc w/Enclosures:
C. A. Franklin, DOE/HQ, CP-1

ENCLOSURE 1

SUMMARY OF KEY CHANGES TO BE MADE IN ORNL PROCEDURES
FOR THE SALE AND DISTRIBUTION OF RADIOISOTOPES

1. For domestic sales of radioisotopes, verification procedures will be enhanced by obtaining a current copy of each customer's license or registration certificate to ensure that the authorization is valid for the type, form, and quantity of radioactive material requested. A mechanism will also be established to obtain written certification that the initial information is current. For subsequent orders, written certification will be obtained that indicates the information on file is current or that all revisions have been provided.

2. A similar verification mechanism will be established for foreign customers ordering radioisotopes, pursuant to the applicable regulatory regimen.

3. While the majority of shipments are made by commercial carrier, improved procedures will be implemented for customer pickup of materials to ensure that only authorized representatives of the customer are allowed to make such pickups, in accordance with provisions of their license.

4. Current radioisotope sales and shipment records retention procedures require a six-year retention period. These procedures will be changed to require a longer retention period, consistent with the life of the hazard of the respective radioisotpes.

5. During our review, we ascertained that a certain class of radioisotopes produced by cyclotron, and not subject to The Atomic Energy Act, are not regulated by NRC nor by certain states. We are undertaking a study to determine how safety assurances can be obtained in connection with our sale of these isotopes.

ENCLOSURE 2

United States Government

Department of Energy
Oak Ridge Operations

memorandum

DATE: December 16, 1987

REPLY TO ATTN OF: SE-31:Davis

SUBJECT: REVIEW OF THE OAK RIDGE NATIONAL LABORATORY (ORNL) ISOTOPE DISTRIBUTION PROGRAM'S (IDP) MANAGEMENT SYSTEM FOR THE VERIFICATION OF THE CUSTOMER'S REGULATORY AUTHORIZATION TO RECEIVE RADIOACTIVE MATERIAL

TO: Richard L. Egli, Assistant Manager for Safety and Environment

During a recent Congressional Hearing, a commitment was made that the Oak Ridge Operations Office would review the management system related to the sale and distribution of radioisotopes. This memorandum contains the results of that review.

SCOPE

The review focused on the sale of radioisotopes by the ORNL for the Department of Energy (DOE) to both domestic and foreign customers. The categories of radioisotopes covered included source, byproduct, special nuclear and accelerator produced materials (See Attachment I for definitions). Emphasis was placed on assessing the effectiveness of the management system in ensuring that radioactive materials are sold only to persons who have been authorized by the appropriate regulatory body to receive the form, type and quantity of material desired. Consistency with Nuclear Regulatory Commission (NRC) regulations was examined. In addition, the procedures for release of material directly to the customer were reviewed with respect to the question of authorization to receive and transport.

SUMMARY OF FINDINGS

ORNL has successfully conducted a radioisotopes sales and distribution program for several decades with no known instances of transfer of material to an unauthorized recipient. The continued success of this program relies heavily on the knowledge and extensive experience of the sales staff. The existing system, however, is judged not to provide the necessary level of confidence that such success will continue, the program will keep pace with the changing regulatory environment, and that all reasonable actions will be taken to ensure transfer of materials only to authorized recipients. The principal underlying weakness is the lack of a quality assurance program for radioisotope sales.

The following recommendations cover this weakness from a broad perspective, and identify actions necessary to correct specific weaknesses. Actions needed to meet management obligations are also proposed in areas that the existing regulatory structure and DOE policy do not address (primarily related to domestic sales of accelerator produced materials and foreign sales of byproduct and accelerator produced materials).

RECOMMENDATIONS

The findings upon which these recommendations are based and which are referenced may be found in Attachment II to this memorandum.

1. Enhance verification efforts for domestic sales by obtaining and reading a current copy of each customer's license or registration certificate, where applicable, to ensure that the authorization is valid for the type, form and quantity of radioactive material requested. A mechanism should be established to obtain written certification by the customer that the initial information provided is current. For subsequent orders, written certification should be obtained that indicates the information is still current or that all revisions have been provided. Nothing in this recommendation or subsequent recommendations should be viewed as implying that a determination is to be made concerning the customer's inventory or use and control program adequacy (Finding 8).

2. For sales of accelerator produced materials to domestic customers in locations where such materials are not regulated by license or registration and to federal customers, develop and implement a verification system which will provide assurance that receipt of the form, type and quantity of material is consistent with the radiological safety program governing the customer's facility (Finding 4,a.).

3. Establish and implement a verification mechanism for obtaining certification for the foreign sales that the customer is, pursuant to the applicable regulatory scheme, authorized to receive the type, form and quantity of materials being purchased (Finding 4.b.).

4. Revise the Isotope Distribution Operating Manual and the Isotope Sales and Services catalog to ensure that they accurately reflect all DOE and ORNL sales policies, procedures and practices with respect to verification. They should also be consistent with 10 CFR 30, 10 CFR 40, 10 CFR 70 and NRC/state licensing practices relative to verification and be in compliance with 10 CFR 110. A mechanism should be established for the periodic review and update of the documents (Findings 2 & 3).

5. Establish and implement a quality assurance program for the IDP that includes but is not limited to:

   a. a formal documented training program for sales staff (Finding 5),

   b. a system to ensure that all pertinent changes in NRC regulations/licensing practices are reviewed for applicability to the IDP and appropriate procedural changes made (Finding 4),

   c. a requirement for an independent completeness review for all orders (Finding 6),

   d. a quality assurance plan (Finding 2),

   e. an internal audit program (Finding 2), and

   f. results of implementation of the other recommendations.

6. Establish, document and implement procedures for customer pick up of materials for both Martin Marietta Energy Systems, Inc., (Energy Systems) and non-Energy Systems sales to ensure that only authorized representatives of the customer are allowed to make such pick ups (Finding 7).

7. Revise records retention requirements to ensure that retention periods are consistent with the life of the hazard of the respective radioisotopes (Finding 9).

OBSERVATION

Development of a computerized database management system would significantly improve responsiveness to inquiries for emergency, audit and general information purposes. It should also increase the overall efficiency of operations (Finding 10).

Bobby J. Davis
Review Committee Chairperson

See Page 4 for Attachment and Concurrence:

Attachment:
Findings

CONCUR:

Doyle L. Brown
Doyle R. Brown, Review Committee Member — 12-10-87 Date

Terri L. Tribble
Terri L. Tribble, Review Committee Member — 12-15-87 Date

Mark A. Smith, Review Committee Advisor — 12-16-87 Date

Attachment II

REVIEW OF THE OAK RIDGE NATIONAL LABORATORY (ORNL) ISOTOPE DISTRIBUTION PROGRAM'S (IDP) MANAGEMENT SYSTEM FOR THE VERIFICATION OF THE CUSTOMER'S REGULATORY AUTHORIZATION TO RECEIVE RADIOACTIVE MATERIAL

FINDINGS

1. General Information - ORNL has available for sale sixty-seven (67) different radioisotopes that fall into one of the following categories: source, byproduct, special nuclear (research quantities), and accelerator produced. Products and services provided are not available from other domestic suppliers. Current sales involve an average of 1600 shipments per year and some 250-300 customers. Total sales constitute about three per cent of domestic sales by all firms that sell radioisotopes. Customers include DOE facilities, other federal agencies; private, foreign, and domestic firms; and foreign governments. Radioisotopes are also available for loan, although in practice this occurs rarely.

2. Sales Responsibilities/Procedures - The ORNL Isotope Sales Office (AS) is responsible for administering the sales and loan programs. The procedures governing these activities are contained in Sections V and VI of the Isotope Distribution Operating Manual. The last revision of this Manual was issued October 20, 1982. There is no requirement for periodic review and update of the Manual. The Manual is out-dated (e.g. sales forms cited are not the version currently in use) and incomplete as discussed in subsequent findings.

   The Manual specifies that orders are to be checked for applicable license and signature. What constitutes appropriate information is not specified.

   ORNL staff indicated that, from a verification standpoint, loans are handled in the same fashion as sales. However, the Manual does not specifically require this; the Manual only requires that records be maintained. There is no quality assurance plan nor internal audit program.

3. Guidelines for Customers - Customers are advised of the purchasing procedures via the Isotopes Products and Services catalog, the latest revision of which occurred October 1, 1985. The next revision is to be published during the first quarter of CY 1988. Section III of the catalog advises the customer of information that must be provided on the various order forms with respect to the license statement requirements/ certification portions of the forms (Appendix 1). These requirements apply only to domestic customers and are not included in the Manual. There are no similar requirements for foreign shipments.

4. ORNL Verification Procedures - The following information indicates the verification requirements employed by ORNL for the various categories of materials and customers involved. The information reflects information obtained from the Manual, the catalog and discussions with ORNL staff. ORNL stated that they are unaware of any sale being made to an unauthorized individual/firm.

   a. Domestic Sales

      (1) Byproduct/Accelerator Produced Radioisotopes - DOE Form ER-391 is used for these sales (Appendix 2) to other than federal agency customers. Section 8 of the form is a certification statement concerning the customer's authorization to receive the material described on the order form and asks for license number and expiration date if applicable. Some materials are exempt from licensing or do not require a specific license, therefore, spaces are provided to allow indication of this where appropriate. The form itself refers only to byproduct material licensed by either the Nuclear Regulatory Commission (NRC) or Agreement State, while the catalog gives instructions on how to address accelerator produced material which is licensed or registered by all states except Montana (The Commonwealth of Puerto Rico also does not register or license accelerator produced material). Although not specified on the form, the certification (according to the catalog) must apply to the facility to which consignment is made. The catalog identifies three mechanisms for providing the license certification for those cases where the buyer's location and consignment location are different: dual signatures of the buyer and consignee, submission of a second purchase order with consignee's signature, or certification letter from consignee. These provisions are not specified in the Manual.

      Form DOE F 5400.3 is used for federal agency sales including those to other DOE contractors (Appendix 3). Section 9 of this form contains a certification statement which asks for license number, indication of exemption or general license, or indication that the organization is not subject to licensing (e.g. DOE contractors). Instructions cited in the above paragraph apply to this form as well, with the exception that the form states that the certification should be disregarded for accelerator produced radioisotopes. This is due to the states' lack of authority to regulate federal facilities and NRC's lack of authority to regulate this material.

(2) Source and special nuclear material - The form Order and Bill of Sale, Special Materials, (Research Materials), (Appendix 4) is used for all such domestic sales. The signature block refers to condition 2 on the back of the form which is a representation statement of authorization to receive pursuant to a NRC and/or state license, implying that the signature is a confirmation of this representation. The catalog also indicates that the buyer should also list the license number, licensing authority and license expiration date. This instruction does not appear on the form or in the Manual. There is also no space provided for the information on the form.

(3) With respect to consistency with NRC regulations, 10 CFR 30.41 (byproduct material), 10 CFR 40.51 (source material) and 10 CFR 70.42 (special nuclear material), the ORNL program is generally consistent with one of the prescribed options for verification, i.e., the possession of a written certification of authorization for receipt of the form, type and quantity of material pursuant to a license or registration certificate. The discrepancies appear to be the absence of the requirement for a license expiration date for sales to federal agencies on the form DOE F 5400.3) and for license number, licensing authority and license expiration date on the form Order and Bill of Sale form.

(4) For situations where licenses have expired ORNL requires evidence that timely renewal efforts have been made by the licensee. This requirement is not documented in the Manual.

b. Foreign Sales

(1) Byproduct/Accelerator Produced Radioisotopes - Form ER-391 is used for all such sales. No certification is required. The question of the lack of need for certification is not addressed in the Manual.

(2) Source and Special Nuclear Material - All such sales are handled via a Contract of Sale (Appendix 5) executed pursuant to an Agreement for Cooperation between the United States and the customer's government. If the customer is not a government facility, a letter from the government indicating that the material and end use are consistent with the Agreement for Cooperation is required. No specific certification of authorization to receive pursuant to the government's regulatory system is required.

(3) The NRC export regulations do not contain requirements for verification before transfer to a foreign customer. The regulations, 10 CFR 110, do provide for certain exemptions from obtaining export licenses for DOE; general license provisions for source, byproduct and special nuclear materials; and specific license requirements. The ORNL staff indicated that they require the customer to arrange for an agent in the United States to obtain the appropriate export license. The only item which ORNL indicated an export license is required is for shipments of tritium in excess of 1000 curies for research purposes. A review of the regulations indicates a specific license is required for shipments of dispersed tritium in excess of 1000 curies, and for undispersed (bulk) tritium in excess of 100 curies. Research is not mentioned. Other sections suggest that no license may be required for certain DOE shipments.

The Manual indicates that certain shipments may require a specific export license and admonishes the supervisor to monitor the licensing requirements. The Manual itself does not indicate the need for an export license for tritium for research but does for any shipments of tritium for commercial use. No information regarding this issue with respect to other radioisotopes is included. Many of the provisions of 10 CFR 110 became effective after the last revision of the Manual.

As a result of inquiries made of ORNL and ORO staff, there appears to be some confusion regarding the responsibility for maintaining awareness of regulatory changes and evaluating their impact.

5. Sales Staff Training - There is no formal documented training program for sales staff. An on the job training approach is used. Biweekly staff meetings are held to provide staff information pertinent to performing their functions.

6. Order Form Completeness - There is no independent quality check performed to ensure adequacy and completeness of verification information. Review of a variety of types of sales found several instances of incomplete documentation, although the committee does not believe the deficiencies resulted in a sale of material to unauthorized recipients.

7. Customer Pick Up of Materials - The majority of shipments are made by commercial carrier; however, customers can pick up their material personally. While identification is required to gain access to the site, specific procedures regarding such pick up from a verification standpoint do not exist for pick up either by Energy Systems or non-Energy Systems customers.

8. Other Verification Options - While ORNL procedures for domestic sales are consistent with the NRC regulations, recent discussions with NRC staff indicate that they require distribution licensees, through license conditions, to follow a more restrictive option contained in the regulations. This option is obtaining and reading the customer's license in order to verify that the customer is authorized to receive the requested type, form and quantity of material. For subsequent orders, oral verification that the information the distributor has is current is obtained. NRC staff believe this process provides an important additional measure of confidence and control. This process addresses only the comparison of the authorized quantities with the amount in any one shipment in the customer's inventory. It does not address the quantity. The inventory comparison is an issue between the customer and the regulator, not between the customer and distributor. With respect to foreign sales, NRC does not require verification, however some NRC licensees have on their own initiative incorporated such requirements in their sales agreements.

   Inquiry was made of the NRC with respect to whether or not a data base exists which could be used to independently verify the licensee information. NRC maintains a data base for their licensees containing the necessary information. However, from the overall perspective, this data base contains information on only 8300 of the some 23,000 such licenses. The remainder are licenses issued by one of the twenty-nine (29) Agreement States who may or may not have a similar data base system. While this independent verification option is important and should be used for questionable situations, the lack of a consolidated, centralized system appears to make routine use impractical.

9. Records Retention - DOE requires isotope sales records to be retained by ORNL for six years, after which they are destroyed. Due to the long half-life of many of the isotopes and the related long period of potential hazard, it appears prudent to re-examine this requirement. As evidenced by a recent case, it may be important to accurately reconstruct sales of a particular isotope or sales to a particular customer over a number of years far in excess of the current six year retention period.

10. Information Management - Limited automation of the records exists. This results in an inability to reconstruct sales of a particular isotope or sales to a particular customer in a reasonable time frame or in an efficient manner. Responsiveness to inquiries and operational efficiencies would be enhanced if a computerized database management system was used.

License Statement

On forms DOE ER-391 and DOE F 5400.3, if the order is for byproduct radioisotopes or for services which involve the shipment of byproduct radioisotopes, the appropriate license block must be checked and the required information completed. No entry is required for stable isotopes or for services which do not involve shipment of radioactive material. If the order involves shipment of cyclotron-produced radioisotopes and the consignee's state does not require a license for cyclotron-produced materials, the words NO LICENSE REQUIRED should be entered in the lower right-hand section of this block. For states which do require licenses for cyclotron-produced materials, the work "byproduct" in the certification statement should be marked out, the appropriate box checked, and the required information completed.

On orders for special materials, the license information must be entered in the lower left of the purchase order form and must show the license number, licensing authority either NRC or name of state (a list of the states that require their own license is shown in Appendix B), and expiration date.

IMPORTANT NOTE: The license or exemption statement must apply to the facility to which consignment is to be made. If the buyer and consignee do not represent the same organization, a license certification statement from an authorized representative of the consignee must be provided to ORNL. This may be done by any one of the following means:

1. Signature, title, and organization identification of the consignee's representative on the original purchase agreement (in addition to buyer's).
2. Submission of a second purchase order on the appropriate DOE form cross-referenced to the buyer's purchase agree ment, identifying the material to be shipped, and signed by the consignee's representative.

3. Letter from the consignee to ORNL referencing the buyer's purchase agreement, identifying the material to be shipped, and containing a license certification in the terms described in block 8 of form DOE ER-391. The letter must also state that the shipment will be accepted transportation charges collect.

It is the buyer's responsibility to assure that the required license certification is provided to ORNL.

Shipping Schedule

The desired shipping schedule and any other instructions relative to shipping may be entered in this section. If no entry is made, shipment will be made at the earliest practical date.

Signature

All purchase orders must be signed. If an order is received unsigned, it will be returned and no action will be taken until a signed purchase order is received.

Miscellaneous Entries

The name of the U.S. federal agency for which the order is being placed should be entered in block 1 of form DOE F 5400.3 and above the signature block of the Federal Agency Order/Special Materials form.

Additional information and instructions may be entered in the Material or Service (Description) section, or a continuation page may be used and referenced.

Shipments of radioactive materials by passenger-carrying aircraft are limited to materials intended for use in, or incident to, research or medical diagnosis or treatment. If the radioactive material being ordered falls within this definition, a statement to this effect may be made on the order. If no statement is made, transportation will be scheduled by cargo-only air or surface.

Orders for materials noted as "nuclear materials requiring documentation of transfer" in the MATERIALS AND SERVICES section of this

APPENDIX 2 III-8

This form is authorized by the Atomic Energy Act of 1954 (Public Law 83-703), as amended

Form Approved
OMB No. 1901-0006

DOE Form ER-391
(4-84)
Previous Editions May Not Be Used

U.S. DEPARTMENT OF ENERGY

ISOTOPE AND TECHNICAL SERVICE ORDER FORM

This form is to be used by all persons other than federal agencies or DOE cost-type contractors, ordering byproduct material, technical services, stable isotopes, or cyclotron-produced radioisotopes, or related services from the U.S. Department of Energy. Submit in duplicate. (Use continuation sheet if required.)

1. TO: (Give name and address of facility from which materials or services will be obtained.)
U.S. DEPARTMENT OF ENERGY
C/O

2. Buyer's Order No.

3. Date

4. Ship To:

5. Bill To:

6. Via:

7. MATERIAL OR SERVICE

CATALOG ITEM NO. (If any)	BYPRODUCT MATERIAL OR OTHER RADIOISOTOPE: State isotope, chemical form, desired total activity, specific activity. TECHNICAL SERVICE: State desired service. STABLE ISOTOPE: State isotope, chemical form, quantity, isotopic concentration (specifying desired enrichment, minimum enrichment).	PURCHASE PRICE	RENTAL FEE

Shipping Schedule

Technical Service Charge (if any)
Handling Charge (if any)
TOTAL

THIS ORDER IS SUBJECT TO THE TERMS AND CONDITIONS ON REVERSE SIDE

8. The undersigned certifies that he (it) is authorized to receive the above-described byproduct material by: (Check block and give license number and expiration date if applicable.)

(a) ☐ NRC or ☐ _____ (Name of State) License No. _____ which expires _____ (Month and day), 19____;
or
(b) ☐ Exemption or General License provided by U.S. Nuclear Regulatory Commission (NRC) regulations;
or
(c) ☐ Exemption or General License provided by _____ (Name of State) regulations.

Accepted for the U.S. Department of Energy

BY _____

TITLE _____ DATE _____

9. FROM: Name and address of buyer:

BY _____

DATE _____

The order on the face hereof is placed in accordance with and subject to the following terms and conditions:

1. The term "buyer" as used herein means the person, corporation, partnership, association, firm, or other organization placing this order. The term "Department" means the U.S. Department of Energy. The phrase "persons acting on behalf of the Department" includes employees and contractors of the Department, and employees of such contractors, who fill or participate in the filling of this order pursuant to their employment or their contracts with the Department. The term "By-product Material" as used herein means any radioactive material (except special nuclear material) yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special nuclear material. The term "DOE facility" means a laboratory, plant, or office operated by or on behalf of the Department.

2. The buyer understands and agrees that the Department may fulfill its obligations under this order through the operator of any of its facilities.

3. Materials and services are furnished at prices and service fees as fixed by the Department and in effect on the date of shipment of material or performance of the services. Prices in catalogs issued by the Department or the operator of any facility are subject to change without notice. Payment for materials and for services rendered shall be made promptly upon receipt of billing in accordance with instructions furnished therewith. Payments received after 30 days from date of invoice may result in the billing, at the Department's option, of interest charges at the per-annum rate (365-day basis) established from time to time by the Department for general application to monies due the Department, and so published in the *Federal Register* for past due accounts.

4. When shipment of material pursuant to this order requires the use of returnable Government-owned containers, title to such containers shall remain in the Government. The buyer will keep the containers in good condition, will not use them for any materials other than the materials shipped therein, and will deliver them *to a carrier for return* to the point of shipment, transportation prepaid, within 30 days from the date of receipt *by the buyer* of the shipment. *The buyer agrees to pay to the Department a demurrage charge on each returnable Government-owned container for that period of retention which is in excess of the said 30-day period.*

5. Except as provided in paragraph 7 as to material loaned or rented under this order, material covered by this order will be shipped f.o.b. the DOE facility from which the order is filled, *provided*, that in case of shipment by rail, f.o.b. shall mean delivery to the nearest railhead of the transporting carrier.

6. Title to material sold under this order shall pass to the buyer when such material is delivered to the carrier.

7. As to any material loaned or rented under this order:

(a) Title to any material procured on a rental or loan basis under this order shall remain in the Department.

(b) Upon expiration or earlier termination of the loan or rental period, as provided on the face of this order, the buyer shall return such material to the Department or designated DOE facility, together with a statement describing use made of the material.

(c) Unless otherwise expressly provided for, on the face of this order, the buyer shall not expend, alter, destroy, contaminate, or dilute such material. The buyer shall be responsible and shall reimburse the Department for any loss, contamination, dilution, consumption of, or damage to, the material loaned or rented hereunder from the time of delivery of such material to the buyer until the material has been returned to the Department or designated DOE facility, or to a carrier for such return.

8. Neither the Government, the Department, nor persons acting on behalf of the Department makes any warranty or other representation, express or implied, that (a) materials accepted for a technical service will not be destroyed, damaged, lost, or otherwise altered in physical or chemical properties in the process of performing the requested technical service, or that (b) materials furnished under this order (1) will not result in injury or damage when used for purposes authorized by the Department or for any other purpose or use, or (2) will accomplish the results for which they are requested or intended.

9. If the quantity, quality, or physical or chemical properties, or form of material delivered under this order do not conform to the specifications set forth in item 7 on the face of this order the responsibility and liability of the Government, the Department, and of persons acting on behalf of the Department shall be limited solely to making reasonable efforts to correct such discrepancies by delivery of material which does conform to said specifications. The buyer agrees to report promptly any discrepancies between the materials supplied and that ordered so that replacement or other appropriate adjustment may be made. The Department will reimburse the buyer for reasonable costs of packaging and transportation incurred by the buyer in returning to the Department any material which does not conform to such specifications.

10. The Department will make reasonable efforts to perform services, or deliver material, at the time or times provided on the face of this order, but neither the Government, the Department, nor persons acting on behalf of the Department shall be subject to any liability for failure to do so.

11. Prior to delivery of material covered by this order, and upon timely request by the buyer, the Department will permit the buyer to cause said material to be tested or measured for conformity to specifications.

12. Unless otherwise expressly provided for in this order, materials supplied by the buyer for technical service, and analyses by the Department may be disposed of in accordance with the usual Department or DOE facility disposal procedures for radioactive materials and the buyer shall have no claim for the value or replacement of materials thus disposed of, *provided*, when the materials supplied by the buyer are held or stored by the Department in accordance with instructions of the buyer, or in order to protect health or to minimize other hazards to life or property, the buyer will pay all storage charges connected therewith. The buyer shall arrange for and bear the expenses of all other storage of such materials and the transportation of materials which are not to be disposed of by the Department.

13. The Department reserves the right to cancel this order (a) in the event the buyer's license (where applicable) is suspended, canceled, or revoked, or (b) when cancellation of this order is determined to be necessary to the national defense and security of the United States.

14. The Department shall have the right to publish and use any information or data developed or produced by the Department or persons acting on behalf of the Department in the course of or in connection with the technical service, testing, or analysis of materials or other services performed hereunder for the buyer, whether such materials are furnished by the buyer or the Department.

15. The buyer agrees to indemnify the Government, the Department, and persons acting on behalf of the Department against liability, including [illegible] and expenses incurred, for infringement of any Letters Patent [illegible]ring in the course of the performance of any service, analysis, or test performed for the buyer as a result of following specific instructions of the buyer in connection therewith, or occurring in the utilization by the buyer of any material procured hereunder, *provided*, that insofar as such materials are prepared or used or services utilized in the performance of a Government contract, this indemnity agreement shall not apply unless such Government contract contains provisions indemnifying the Government against patent infringement.

16. [illegible] will be held confidential only to the extent that a determination by it, within the Department, or that, under laws and established practices, all information so specified in the Freedom of Information Act (5 U.S.C. Section 552) that will

BEST AVAILABLE COPY

APPENDIX 3 III-10

DOE F 5400.3 (Formerly E-375) (9-80) U.S. DEPARTMENT OF ENERGY Previous Editions May Not Be Used

ISOTOPE ORDER BLANK

FOR USE BY FEDERAL AGENCIES ONLY

1. FROM: Name and address of requisitioning agency

2. Requisitioning Agency Order No.:

3. Date

4. SHIP TO:

5. BILL TO:

6. VIA:

7. G/BL No.:

8. TO: Insert name of the DOE facility from which materials or services will be ordered.

9. The undersigned certifies that he (it) is authorized by

☐ (a) UNITED STATES NUCLEAR REGULATORY COMMISSION License No. _____, or

☐ (b) Exemption or General License provided by NRC regulations to receive the following described material, or

☐ (c) Not subject to the Atomic Energy Act of 1954, as amended.

NOTICE. Disregard Item 9 if order is for stable isotopes, technical service not inducing radioactivity, or for cyclotron-produced radioisotopes.

MATERIAL OR SERVICE

10. Catalog Item No. (If any)	BYPRODUCT, SOURCE, OR SPECIAL NUCLEAR MATERIALS OR OTHER RADIOISOTOPES: State isotope, chemical form, desired total activity, specific activity. TECHNICAL SERVICE State desired service. STABLE ISOTOPE: State isotope, chemical form, quantity, isotopic concentration (specifying desired enrichment, minimum enrichment). (Use continuation sheet if required)	Purchase Price	Rental Fee
	Shipping Schedule	HANDLING CHARGE (If any)	
		TOTAL	

THIS ORDER IS SUBJECT TO THE TERMS AND CONDITIONS ON REVERSE SIDE

ACCEPTED FOR THE U.S. DEPARTMENT OF ENERGY

By _____

DATE _____

REQUISITIONING AGENCY NOTE: FORM MUST BE SIGNED

By _____

Title _____

DATE _____

TERMS AND CONDITIONS

1. Byproduct, source, and special nuclear materials, technical services or other isotopic materials are furnished at prices and service fees as fixed by the U.S. Department of Energy and in effect on the date of shipment of material or performance of the services. Prices in catalogs issued by the Department or the operator of any DOE facility are subject to change without notice. All transportation costs will be paid by the requisitioning agency, and materials will be shipped F.O.B. the DOE facility handling the transaction. When shipment of material pursuant to this order requires the use of returnable Government-owned containers, title to such containers shall remain in the Government. The buyer will keep the containers in good condition, will not use them for any materials other than the materials shipped therein, and will *deliver* them *to a carrier for return* to the point of shipment, transportation prepaid, within thirty days from the date of receipt *by the buyer* of the shipment. *The buyer agrees to pay to the Department a demurrage charge on each returnable Government-owned container for that period of retention which is in excess of the said 30-day period.*

2. The right to revoke or cancel this order is reserved to DOE.

3. Material ordered from a DOE facility will be shipped as nearly approximating the condition specified in the order as is possible, but no representation is made that materials will be of a particular quality, quantity, or activity, or will be delivered at specified times. The requisitioning agency agrees to report promptly any discrepancies between the material supplied and that ordered so that replacement or other appropriate adjustment may be made.

4. Payment will be made direct to the operator of the DOE facility from which the materials or services are ordered.

5. Title to any material procured on a loan or rental basis under this order shall remain in the DOE. A completed Loan Agreement form, which will be provided by the DOE, must accompany this order if material is being procured on a loan or rental basis.

INSTRUCTIONS

1. This isotope order blank has been prepared for use by all Federal agencies ordering byproduct, source, and special nuclear materials, technical services, or other isotopic materials from DOE or DOE facilities owned by the U.S. Department of Energy and operated for DOE by contractors. No other type of order blank, purchase order, or contract will be accepted by DOE or DOE facilities.

2. When submitting this order form the requisitioning agency should furnish a prepared bill of lading on which shipment will be made. If such bill of lading is not furnished, shipment will be made collect on a commercial bill of lading to be converted at destination.

3. The DOE utilizes the services of contractors operating its facilities to perform distribution functions for DOE under cost-type contractual arrangements whereby expenses of the facilities are borne by DOE and revenue from distribution of byproduct, source, and special nuclear materials, special technical services, and other isotopic materials is deposited for the account of the Government, used to reduce costs of operation, or paid over as directed by DOE in accordance with applicable contract provisions.

FOR INFORMATION ON HOW TO APPLY FOR A "BYPRODUCT MATERIAL LICENSE," FORM NRC-374, WRITE TO:

U.S. NUCLEAR REGULATORY COMMISSION
MATERIALS LICENSING BRANCH
DIVISION OF FUEL CYCLE AND MATERIAL SAFETY
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS
WASHINGTON, D.C. 20555

ORDER AND BILL OF SALE

SPECIAL MATERIALS
(RESEARCH QUANTITIES)

APPENDIX 4

The Buyer hereby offers to purchase and the Seller hereby sells to the Buyer the following special material(s) for the price(s) indicated:

Quantity	Description (chemical form, properties, etc.)	Price
	Packaging and handling charge _____	
	Conversion charge (if any) _____	
	Other special charge _____	
	TOTAL	

Shipping address:	Billing address:

This order and sale are subject to the terms set forth on the reverse side.

Buyer

_____

BY: _____

TITLE: _____

DATE: _____

Buyer's license:
(See paragraph 2)

Seller

UNITED STATES OF AMERICA

UNITED STATES DEPARTMENT OF ENERGY

ACCEPTED FOR THE DEPARTMENT

BY: _____

_____

_____

1. Definitions - The word "Government" as used herein shall mean the United States of America, and the word "Department" shall mean the United States Department of Energy, or its duly authorized representative or representatives. The word "Buyer" shall mean the person, company, or corporation purchasing special materials under this Order and Bill of Sale. "Special materials" mean isotopically enriched quantities of Thorium, Uranium and Plutonium and such other materials as the Department may determine to include. Special materials may be "special nuclear material," "source material," or "by-product material" as defined in the Atomic Energy Act of 1954 and the Department's regulations (10 CFR Parts 70, 40, or 30).

2. The Buyer represents that it is authorized to receive the materials by a valid and sufficient license issued by the U. S. Nuclear Regulatory Commission and/or by such a license issued by a State which has entered into an agreement with the Department pursuant to Section 274 of the Atomic Energy Act of 1954, as amended.

3. The Seller may fulfill any of its obligations hereunder through the operator of any of the Facilities of the Department of Energy.

4. Payment for material sold, if not accompanying the Order, shall be made within 30 days from the date of the Department's invoice.

5. Delivery of materials sold will be made at Oak Ridge, Tennessee, directly to the Buyer or to a carrier designated by the Buyer.

6. Title to materials sold shall pass to the Buyer upon delivery to the Buyer or to a carrier designated by the Buyer as provided in 5. above.

7. Buyer accepts as final and conclusive, Seller's determination that materials sold and delivered hereunder are of the quantity, form, and have the properties set forth on the face of this document.

8. Neither the Seller nor persons or firms acting for the Seller makes any warranty or other representation, express or implied, that the materials sold hereunder (1) will not result in injury or damage when used for any purpose, (2) are of merchantable quality, or (3) fit for any particular purpose.

9. No member of or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this sale, or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this sale if made with a corporation for its general benefit.

10. Buyer warrants that no person or selling agency has been employed or retained to solicit or secure this sale upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Customer for the purpose of securing business. For breach or violation of this warranty, the Government shall have the right to annul this sale without liability or, in its discretion, to deduct from the sale price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fees.

APPENDIX 5

CONTRACT OF SALE OF

(hereinafter referred to as the "Purchaser") agrees to purchase from the United States Department of Energy, acting for and on behalf of the Government of the United States of America (hereinafter referred to as the "Seller"), and the Seller agrees to sell to the Purchaser the following described item or material pursuant to the terms and conditions of the Agreement for Cooperation Concerning Civil Uses of Atomic Energy Between the Government of the United States of America and the Government of

_____

_____

(hereinafter referred to as the "AGREEMENT FOR COOPERATION"), and subject to the terms and conditions attached to this Contract as Attachment No. 1 which is hereby made a part of this Contract. The item or material sold hereunder will be used _____

_____

_____

Item or Material	Charges

Ship to: _____

_____

_____

_____

_____

Bill to: _____

_____

_____

_____

_____

Delivery Date: _____

Shipping Instructions: _____

FOR THE UNITED STATES DEPARTMENT OF ENERGY ACTING FOR AND ON BEHALF OF THE GOVERNMENT OF THE UNITED STATES OF AMERICA

_____

Date: _____

_____

Date: _____

Rev. 5/22/75 - SNM

ATTACHMENT NO. 1

TERMS AND CONDITIONS

I. Specification and Form of Material. Except as otherwise agreed, special nuclear material sold hereunder shall be furnished by the Seller in the Seller's standard chemical form for distribution of the material and in accordance with the Seller's established specifications as published by the Seller in the United States Federal Register from time to time.

II. Deliveries. The Seller shall deliver amounts of special nuclear material necessary for implementation of this Contract to the Purchaser, F.O.B. the Purchaser's vehicle or commercial conveyance at a facility designated by the Seller. Unless otherwise specifically agreed by the Parties in writing, title to material shall pass to the Purchaser upon such delivery. Risk of loss of, or damage to, the material shall pass with title. All costs of containers and packaging and/or storing such material shall be the responsibility of and be borne by the Purchaser. The Purchaser shall pay the Seller's service charges, if any, for withdrawal, handling and packaging, and for any other special service rendered, at the Purchaser's request, in connection with furnishing material hereunder, as determined in accordance with the Seller's established pricing policy in effect on the date of delivery of the material.

III. Responsibility. A. After delivery of special nuclear material to the Purchaser, the Purchaser shall hold the Seller harmless from any and all damages, liability and costs (including third party liability) for any cause whatsoever arising out of or in connection with the furnishing of material hereunder, provided, however, that the Purchaser shall not be responsible for any damages, liability or costs which are solely attributable to the fault or negligence of the U.S. Government, the Seller, and persons acting on their behalf.

B. The application and use of any material delivered to the Purchaser pursuant to this Contract shall be the responsibility of the Purchaser, and the Seller makes no warranty, express, implied or statutory, concerning such material or its suitability for any particular use or application. Nothing in this contract shall deprive the Purchaser or any other person of any rights under Section 170 of the United States Atomic Energy Act of 1954, as amended.

IV. Time of Delivery. The Seller will make reasonable efforts to make available the special nuclear material which is the subject of sale hereunder at the time or times requested by the Purchaser, but neither the Seller nor persons acting on behalf of the Seller shall be subject to any liability for any failure to do so.

V. Payment. Within thirty (30) days after the date of any invoice of the Seller (such invoice to be dispatched at, or subsequent to, the delivery, as specified in Article II, of the material sold hereunder) the Purchaser shall compensate the Seller for the material at its value as of the time of delivery and for any service charges applicable to the delivered material. Payment shall be made in United States currency and shall be paid to the Seller or its designated agent or contractor. The Purchaser shall pay interest at the per annum rate (365-day basis) established from time to time by the Energy Research and Development Administration for general application to monies due the Energy Research and Development Administration on all amounts not received by the Energy Research and Development Administration within thirty (30) days from the date of invoice, such interest to commence on the thirty-first (31st) day from date of invoice except, that whenever the due date for any payment under this paragraph falls on a Saturday, a Sunday, or a U.S. legal holiday, interest shall commence on the day immediately following the next day which is not a Saturday, a Sunday, or a U.S. legal holiday.

VI. Determination of Material Quantities and Properties. Unless otherwise agreed, the Seller's determination of quantities and properties of material sold under this contract shall be final and binding upon the parties.

VII. No Assignment. The Purchaser may not assign this Contract or any rights or interests hereunder without the express written consent of the Seller and then only in accordance with the provisions of the Agreement for Cooperation and any amendments or revisions thereto.

VIII. Officials Not to Benefit. No Member of the Congress of the United States of America, or Resident Commissioner of the United States of America, shall be admitted to or share any part of this Contract or any benefit that may arise therefrom.

IX. Agreement for Cooperation. The sale which is the subject of this Contract shall be in all respects subject to and in accordance with all of the terms, conditions, and provisions of the Agreement for Cooperation referred to on page 1 of this Contract, and any amendments or revisions thereto, it being understood that the safeguards and guarantees specified in said Agreement will always apply to any material transferred hereunder except for any material subsequently transferred with the written approval of the Seller. In the event of incompatibility between this Contract and the Agreement, the latter shall govern.

X. Applicable Law. This Contract shall be construed in accordance with the internal federal law applicable in United States District Courts to contracts to which the Government of the United States of America is a party.

XI. Covenant Against Contingent Fees. The Purchaser warrants that no person or selling agency has been employed or retained to solicit or secure this Sale upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Purchaser for the purpose of securing business. For breach or violation of this warranty the United States Government shall have the right to annul this Sale without liability.

XII. Permits. The Purchaser shall procure all necessary permits or licenses (including any material licenses) and comply with all applicable laws, regulations, and ordinances of the United States and of any State, territory, or political subdivision thereof.

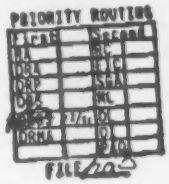
Report of Region III Confirmatory Survey at Wright-Patterson Air Force Base

On November 23 and December 8, 1987, Oak Ridge Associated Universities, under contract to the NRC, performed confirmatory surveys of the Building 4060 area and the Boy Scout camp. (Report attached).

Oak Ridge Associated Universities
Post Office Box 117
Oak Ridge, Tennessee 37831-0117

Manpower Education, Research, and Training Division

December 17, 1987



Mr. Roy Caniano
US Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Subject: Technical Assistance - Wright Patterson Air Force Base, Dayton, Ohio

Dear Mr. Caniano:

At the request of your office, the Radiological Site Assessment Program of Oak Ridge Associated Universities (ORAU) provided assistance to the NRC by performing environmental monitoring surveys and health physics assessments at Wright Patterson Air Force Base, located in Dayton, Ohio. ORAU was requested to conduct direct measurements and soil and water sampling at two locations (Building 4060 area and Boy Scout Camp area) on November 23, 1987; and follow-up soil sampling at the 4060 area on December 8, 1987. During the December 7 through 9 survey, ORAU was requested to review a WPAFB document, "Work Instruction for Identification and Repackaging of Radioactive Waste at Wright Patterson Air Force Base", undated. ORAU also was requested to observe the unlabelled drum opening and inspection work, to ensure that the actual procedure conformed to the work document developed by WPAFB. ORAU was also requested to perform field assays to determine the radionuclide contents in each of three unlabelled drums.

Site History and Background

WPAFB is located 15 kilometers northeast of Dayton, Ohio. Building 4060 was located at the extreme northwest corner of the base, inside the munitions storage area. The building was removed during remedial action which followed an Am-241 contamination incident in September 1986. The munitions storage area is isolated on the base, and maintained under 24 hour security. The Boy Scout Camp area is also located on the northwest corner of the base, slightly west of the 4060 area. This area was included in the November survey due to concerns raised by the general population, that contamination from the 4060 area may have been transferred to the Boy Scout Camp.

Procedures

ORAU performed a walkover scan of the Building 4060 area (Figure 1), using an Victoreen 489-55 NaI(Tl) gamma scintillation detector coupled to an Eberline PRM-6 ratemeter, with audible indicator. ORAU also used a Bicron FIDLER detector coupled to a similar ratemeter. Twenty-five systematic surface soil samples were collected from the 4060 area on November 23rd, and

two soil samples were collected from areas of elevated radiation levels. Based on the results of these samples, ORAU collected an additional thirty systematic and two follow-up surface soil samples on December 8, 1987. The additional systematic samples were collected on subdivided grid intervals, and the two follow-up samples were collected following remedial action by WPAFB personnel.

ORAU performed a walkover scan of the Boy Scout Camp (Figure 2), using a Victoreen 489-55 NaI(Tl) gamma scintillation detector coupled to an Eberline PRM-6 ratemeter, with audible indicator. ORAU also used a Bicron FIDLER detector coupled to a similar ratemeter. Twelve random surface soil samples and a water sample were collected from this area. The water sample was collected from a well located at the site.

ORAU reviewed the work document ("Work Instruction for Identification and Repackaging of Radioactive Waste at Wright Patterson Air Force Base") for technical accuracy and practical operating procedures.

ORAU performed limited field assays on the three drums using a portable intrinsic germanium detector and a Transpec multichannel analyzer system, developed by Quantum Technologies Inc., Atlanta, Georgia. The three drums were labelled as follows: Green, Red, and #27. The drums were also individually scanned using a Bicron FIDLER detector coupled to a Ludlum Model 2220 portable scaler/ratemeter.

Results

The walkover gamma scan of the Building 4060 area indicated two areas of elevated radiation levels which were attributed to Am-241 (Figure 1). Area 39, at contact, was approximately three times background on the FIDLER detector, and dropped off to background levels at one meter. Following remedial action, both the contact and one meter readings were within the normal background range. Area 40, at contact, was approximately seven times background, and dropped off to normal background levels at one meter. Following remedial action, both the contact and one meter readings were within the normal background range. The readings were compared in gross counts per minute instead of converting to uR/h, because the PIC used for cross calibration purposes has an energy threshold of approximately 90 kev, and therefore could not detect the 60 kev gamma line associated with Am-241.

Table 1 presents the Am-241 concentration in soil samples collected in the Building 4060 area. The Am-241 concentration in the systematic samples ranged from less than the detection sensitivity (0.04pCi/g) to 3.2 pCi/g. The two samples from the elevated radiation levels were 57 and 660 pCi/g. Following remediation of the elevated areas, the Am-241 concentrations at the same locations were 1.9 and 4.3 pCi/g respectively.

The walkover gamma scan of the Boy Scout Camp area did not indicate any elevated radiation levels above background on the FIDLER detector.

Table 2 presents the Am-241 concentration in surface soil samples collected in the Boy Scout Camp area. The Am-241 concentration in each soil

sample was less than 0.09 pCi/g. The water sample collected from the well was analyzed for gross alpha and gross beta activity. The gross alpha activity was 2.1 pCi/l and the gross beta activity was 3.3 pCi/l.

ORAU reviewed the work document described above, and minor comments were provided to your office by telephone on December 4, 1987.

ORAU individually scanned the three drums, and marked elevated radiation levels for analysis, using the portable Ge detector and MCA system. Table 3 presents the results of the MCA analysis.

ORAU observed the opening and inspection of the three drums. Work practices used were as outlined in the work procedures described above. No unusual occurrences or unsafe practices were observed during the drum investigation task.

Conclusions

The Am-241 concentrations in soil samples at the 4060 area and the Boy Scout Camp are within guideline levels (20 pCi/g) established by the NRC for another Am-241 contamination incident. The water sample contained gross alpha and beta concentrations within the EPA drinking water screening levels of 15 pCi/l and 50 pCi/l respectively. Radiation levels at both locations are within the background range attributed to naturally occurring radionuclides. The three drums were successfully opened and their contents were identified. Waste materials contained in the drums were typical of biological and nuclear research programs, diagnostic nuclear medicine departments, and other gauging devices using radioactive materials.

Summary

ORAU was requested to provide technical assistance to the Nuclear Regulatory Commission's Region III office at the Wright Patterson Air Force Base during the periods November 23-24, and December 7-8, 1987. The environmental survey indicates the 4060 area and the Boy Scout Camp are within NRC guideline levels for Am-241 soil concentrations. WPAFB successfully opened and inventoried three drums with unknown contents, and in ORAU's opinion, all operations were carried out in a safe and efficient manner. WPAFB has demonstrated sufficient manpower, facilities, and resources to effectively decommission the 4060 area, and survey other areas potentially associated with the 4060 project. WPAFB should be commended for their professionalism and integrity.

If you have any questions, please call me at FTS 626-0048 or (615) 576-0048.

Sincerely,

Glenn L. Murphy, Assistant Manager
Radiological Site Assistance Program

GLM:mec
cc: B. Mallett, NRC/Region III
D. Sly, NRC/I&MS
D. Corley, NRC/I&MS

TABLE 1

AM-241 CONCENTRATIONS IN SOIL
BUILDING 4060 AREA
WRIGHT PATTERSON AIR FORCE BASE
DAYTON, OHIO

Sample No.	Location W	S	(pCi/g)
1	-5	0	0.1 ± 0.1[b]
2	0	0	0.2 ± 0.1
3	5	0	0.1 ± 0.1
4	10	0	0.9 ± 0.1
5	15	0	1.9 ± 0.2
6	20	0	3.2 ± 0.2
7	25	0	1.4 ± 0.2
8	30	0	<0.04
9	40	0	<0.04
10	-5	10	<0.04
11	0	10	0.2 ± 0.1
14	15	10	0.5 ± 0.1
15	20	10	2.1 ± 0.2
16	25	10	0.3 ± 0.1
17	30	10	0.5 ± 0.2
18	40	10	<0.06
19	15	15	<0.07
1/	20	15	0.9 ± 0.2
21	25	15	0.4 ± 0.1
22	30	15	0.5 ± 0.1
23	0	20	<0.04
24	10	20	<0.05
25	20	20	0.1 ± 0.1
26	25	20	<0.06
27	30	20	<0.06
28	40	20	<0.04
29	0	30	0.03
30	10	30	0.05
31	20	30	0.05
32	30	30	<0.06
33	40	30	<0.06
34	0	40	<0.04
35	10	40	<0.04
36	20	40	<0.05
37	30	40	<0.07
38	40	40	<0.05
39A[c]	16	9	57 ± 13
39B[d]	16	9	1.9 ± 0.2
40A[c]	27	14	660 ± 71
40B[d]	27	14	4.3 ± 0.3

[a]Refer to Figure 1.
[b]Uncertainties are 2 σ based only on counting statistics.
[c]Before Remedial Action
[d]After Remedial Action

TABLE 2

AM-241 CONCENTRATIONS IN SOIL
BOY SCOUT CAMP AREA
WRIGHT PATTERSON AIR FORCE BASE
DAYTON, OHIO

Location[a]	(pCi/g)
1	<0.08
2	<0.05
3	<0.07
4	<0.06
5	<0.08
6	<0.08
7	<0.09
8	<0.09
9	<0.08
10	<0.08
11	<0.05
12	<0.08

[a]Refer to Figure 2.

TABLE 3

GAMMA SPECTROSCOPY RESULTS FROM UNLABELLED DRUMS
WRIGHT PATTERSON AIR FORCE BASE
DAYTON, OHIO

Drum ID	Dominant Radionuclide Detected
Green	Am-241
Red	Ra-226
#27	Eu-152

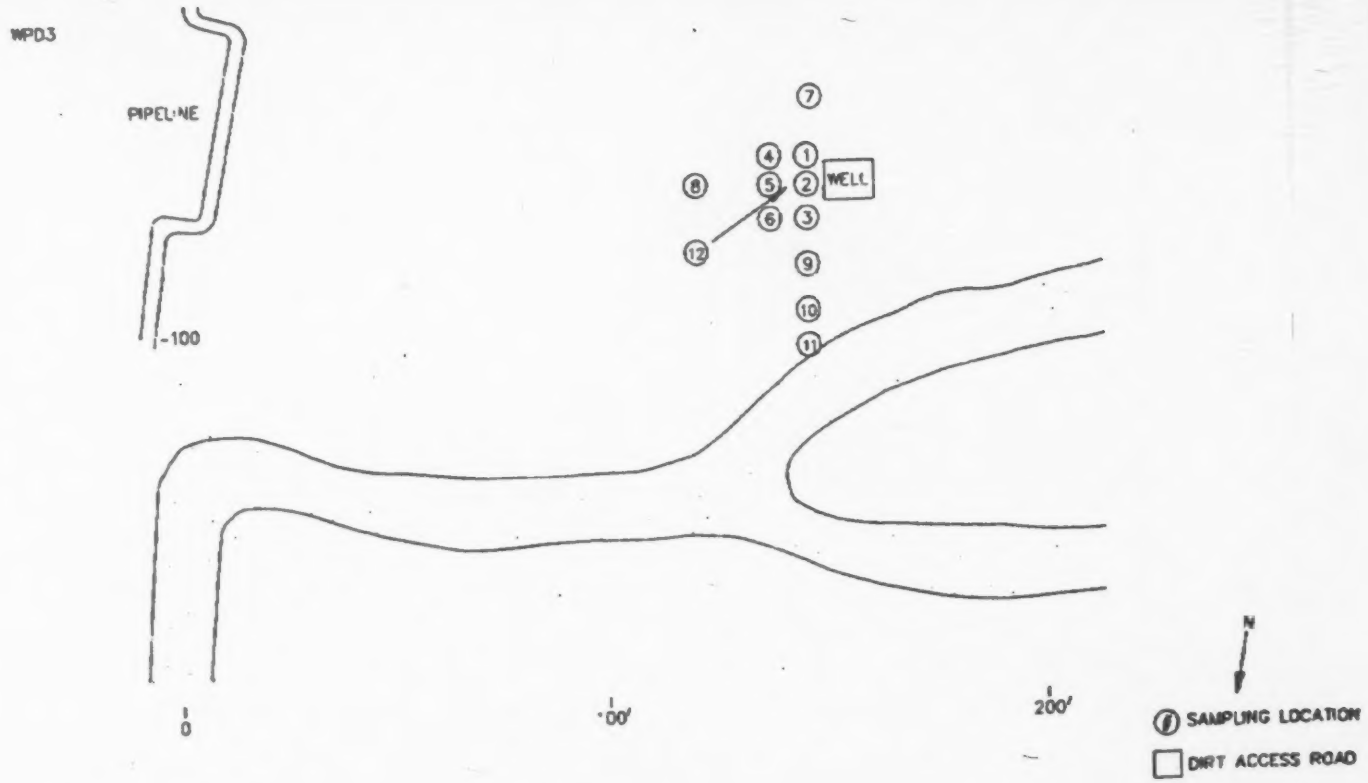


FIGURE 2: Map of Boy Scout Camp Showing Soil Sampling Locations

WPD4

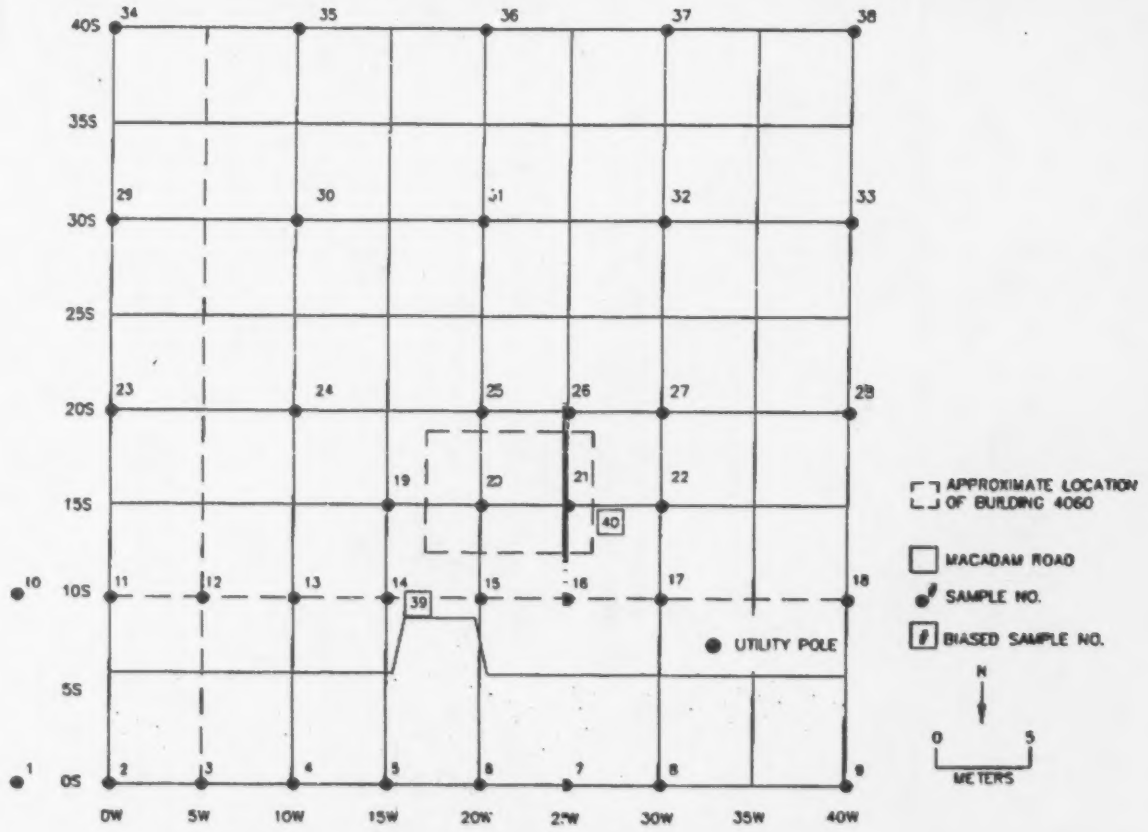


FIGURE 1: Map of Building 4050 Area Showing Locations of Systematic and Biased Soil Sampling

Senator John Glenn

News Release

For Immediate Release
March 15, 1988

Contact: Leonard Weiss (202) 224-4751
Martha Di Sario (202) 224-9799

STATEMENT OF SENATOR JOHN GLENN
ON THE RELEASE OF INFORMATION RELATING TO THE AMERICIUM-241
LEAKS AT WRIGHT-PATTERSON

Today I am releasing a study prepared by my staff on the Committee on Governmental Affairs which summarizes and analyzes the key events relating to the Americium-241 leaks at Wright-Patterson Air Force Base during the fall of 1986. The study focuses on the Air Force's reporting relationship with the Nuclear Regulatory Commission (NRC), the federal agency which licenses the Air Force for use of radioactive materials. The study shows that the critical breakdown in communications can be attributed to poor performances by personnel on each side. The study also calls into question the effectiveness of the NRC's overall program for materials licensing and inspection.

Previously, on November 21, 1987, the Committee on Governmental Affairs, in conjunction with the Senate Committee on Energy and Natural Resources, represented by Senator Howard M. Metzenbaum (D-Ohio), held a field hearing in Dayton concerning the health and safety issues surrounding the radioactive spills at the Base. The study I am releasing today is based on documents obtained before and after the hearing, as well as staff interviews with some of the participants in this episode.

In my view, Ohioans and others have rightly complained that they were kept in the dark about the actual risks involved in a growing radiation problem within a storage facility on the Base. The NRC's failure to come on-site to investigate the contamination for nearly five weeks raises questions about the federal government's ability to protect the health and safety of those working or living on the Base or in nearby communities. Since the hearing, I have examined why the NRC took so long to respond to the Americium leaks. I have also examined whether actions on the part of either the Air Force or NRC could have prevented the second spill on October 6th. This spill caused widespread contamination within the storage facility and resulted in the internal contamination of Dr. John Ricci.

I have concluded that the Air Force is largely to blame for providing the NRC with misinformation during September and October 1986 which downplayed the severity of the radiation threat present in the storage facility. Subsequent NRC reviews of the situation conducted by the NRC's Region III and its Office of Investigations have found that the Air Force violated the NRC's regulations requiring prompt and accurate reporting of radiation accidents to the NRC. These internal reviews have been referred to federal prosecutors for their consideration of whether Air Force personnel possibly committed violations of federal law by knowingly and willfully withholding material information from the NRC.

At the same time, however, the NRC is far from blameless. On numerous occasions, employees in two Regional Offices failed to follow up on significant information alerting them that a radiation problem existed on the Base.

Documents I have obtained from the NRC since the hearing indicate that the Wright-Patterson episode may represent more than just a breakdown in communications or lack of inquisitiveness on the part of key NRC and Air Force personnel.

The documents show that two employees in the NRC's Region IV -- the Regional Office which supervises the Air Force license -- recently disputed the finding that the Air Force violated NRC requirements to accurately report the radiation leaks. These employees told the federal prosecutor that the NRC's own reporting regulations are "vague, ambiguous and leave room for interpretation." This admission would likely undercut any attempt to impose civil or criminal penalties on those Air Force personnel who allegedly have violated those requirements.

This admission has potentially larger implications as well. The position taken by these Region IV employees calls into question the competence and effectiveness of the NRC's overall program for radioactive materials licensing and inspection. It suggests that at present, it may be impossible for some nuclear regulators to make judgments about threats to public health and safety based on the information acquired from licensees.

The Wright-Patterson incident further warrants review of our entire nuclear accident reporting and notification system. It would appear that, in this case, that framework proved too unwieldly and susceptible to human errors. In order to address the question of what more Congress can do to ensure a fail-safe reporting system, I have requested that

the General Accounting Office (GAO) undertake a thorough examination of this issue.

In addition, I have asked GAO to examine the storage, processing, and handling of radioactive materials at our nation's military installations. I want to know whether the Wright-Patterson episode is merely an isolated case, or is indicative of similar problems at military bases across the country. Are more accidents of this type just waiting to happen elswhere?

While I will continue to work with my colleagues in Congress, especially Senator Metzenbaum, in making sure that the federal issues highlighted by this event are addressed, I also think it is important not to lose sight of the human toll as well. First, the evidence shows that there were ample opportunities on each side to discover the exact nature of the radiation problem and the magnitude of the cleanup effort. Since several of these opportunities were missed, the second spill occurred. Dr. Ricci must now grapple with the uncertain knowledge of the health consequences of his inhalation of Americium.

Second, there is Sergeant Wendell Wingo, who, against his superior officer's order, preserved the tape of an early group conversation at Wright-Patterson about the first Americium spill. It was at this meeting that an attempted cover-up was planned. Sergeant Wingo gave this incriminating evidence to the appropriate federal authorities in 1987. Since this time, Sergeant Wingo has suffered a negative performance review, which after an appeal, was expunged from his record. Recently, however, Sergeant Wingo was ordered reassigned out of the Base environmental unit. No

explanation was given for this move. Due to these events, Sergeant Wingo has decided to retire early from the Air Force, where he has served for some 23 years. This is a sad ending for a man whose actions showed courage and integrity.

A SUMMARY AND ANALYSIS

OF KEY EVENTS RELATING TO THE AMERICIUM LEAKS

AT WRIGHT-PATTERSON AIR FORCE BASE

DURING AUTUMN 1986

A Study Prepared by
The Majority Staff of the
Senate Committee on Governmental Affairs
John Glenn, Chairman
March, 1988

Table of Contents

PERSONNEL AND ORGANIZATIONAL LISTING

I. EVENTS ON THE BASE FOLLOWING THE FIRST SPILL: SEPTEMBER 18 - 26, 1986

A) Background..... 1

B) Findings of the NRC..... 4

C) Analysis..... 5

II. THE BASE'S COUMMUNICATIONS WITH THE NRC: AUGUST 20 - OCTOBER 24, 1986

A) Background..... 7

B) NRC's Findings..... 13

C) Analysis..... 13

III. RADIOISOTOPE COMMITTEE'S COUMMUNICATIONS WITH THE NRC: SEPTEMBER 26 - OCTOBER 23, 1986

A) Background..... 16

B) The NRC's Findings..... 21

C) Analysis..... 22

IV. THE WINGO STORY..... 27

V. UPDATE ON KEY PERSONNEL

A) Air Force..... 29

B) NRC..... 31

C) Other..... 32

PERSONNEL AND ORGANIZATIONAL LISTING

At Wright-Patterson Air Force Base (WPAFB):

A) Base Administration and Command Office

FOX, Col. Charles E., Wing Commander
KOLLAR, Col. Stephen F., Vice Wing Commander
SHOUP, Thomas E., Deputy Civil Engineer

B) Medical Center

BODE, Col. Federick R., Commander
SWANSON, Lt. Col. John S., Chief of Medical Physics
RICCI, Maj. John, Medical Physicist

C) Bioenvironmental Engineering Group (BEE)

The BEE unit's duties include ensuring Base compliance with environmental health and safety federal regulations. BEE supports the Base Command officer operationally; however, BEE's Director reports to the WPAFB Medical Center.

MOODY, Lt. Col. Maynard G., Director
DUNN, Victor C., Deputy Director
LEWIS, James, Radiation Safety Officer
WINGO, SMSgt. Wendell I., Superintendent

At USAF Radioisotope Committee, Brooks AFB, San Antonio, TX:

The Radioisotope Committee (RIC) has responsibility for administering the NRC broad scope license authorizing the Air Force to regulate the use of NRC-licensed radioactive materials at Air Force installations. RIC reports to NRC Region IV in Arlington, TX, on matters pertaining to the NRC-issued broad scope license.

MAUK, Col. Bryant D., Chairman (Headquartered at Bolling AFB, Washington, D.C.)
BURR, Lt. Col. John G., Executive Secretary until approximately October 2, 1986
WOOD, Lt. Col. David G., Executive Secretary as of October 2, 1986
DUNLAP, Maj. James, Staff Member
DONOVAN, Capt. Lawrence, Staff Member

At NRC Region IV, Arlington, TX:

NRC Region IV supervises the Air Force broad scope license administered by the Radioisotope Committee (RIC) at Brooks AFB.

EVERETT, Jerry, Chief, Nuclear Materials Safety Section
CAIN, Charles L., Radiation Specialist
WHITTEN, Jack E., Materials Licensing Staff

At NRC Region III, Chicago, IL:

NRC Region III has inspection and enforcement jurisdiction over NRC-authorized licenses within its territory.

WIEDEMAN, Darrel, Chief, Nuclear Materials Safety Section 1
AXELSON, William L., Chief Nuclear Materials Safety and Safeguards Branch
ADAM, William J., Senior Licensing Reviewer

A SUMMARY AND ANALYSIS OF KEY EVENTS RELATING TO THE AMERICIUM LEAKS AT WRIGHT-PATTERSON AIR FORCE BASE DURING AUTUMN 1986

I. EVENTS ON THE BASE FOLLOWING THE FIRST SPILL: SEPTEMBER 18 - 26, 1986

A) Background

On September 18, 1986, Radiation Safety Officer James Lewis and three other members of the Bioenvironmental Engineering (BEE) Group began to inventory radioactive waste stored in Building 4060 on the Wright-Patterson Air Force Base. During the inventory, they opened a drum with no identifying label, thereby causing a leakage of unsealed Americium-241. This resulted in significant interior contamination of Building 4060, and slight contamination of the lip of one of the doors to the Building. At this time, Wright-Patterson was authorized to possess only millicurie quantities of Americium-241 in sealed forms.

NOTE: According to the Nuclear Regulatory Commission (NRC), Americium-241 is a man-made radioactive element, produced in a nuclear reactor, that emits high-energy alpha particles and low-energy gamma radiation. The principal danger occurs when Americium is inhaled or absorbed through a skin wound. Upon reaching the body's circulatory system, Americium deposits at three sites: the skeleton, liver and gonads. The material is not a significant radiation hazard outside the body, because the alpha particles emitted travel only a very short distance in the air and cannot penetrate skin. The NRC's safe quarterly limit for an individual's lung intake of Americium-241 is 3.8 nanocuries. The gamma

radiation would not cause a significant radiation dose except if the material is kept close to the body over a long period of time.

On September 18th, the BEE Group Director, Lt. Col. Maynard (Gar) Moody, and his Deputy Director, Mr. Victor C. Dunn, learned that there had been a radiation spill. This was Moody's first week on the job.

On September 19th, Moody held a BEE office meeting. A tape recording of this meeting was made by Senior Master Sergeant (SMSgt.) Wendell I. Wingo, Superintendent of BEE, who normally took notes or recorded the office meetings, and later transcribed them into minutes. A transcript of the tape recording edited by Wingo reveals that Moody directed that the radiation spill be kept confidential within the BEE Group until they could solve the problem. When asked at the meeting about the requirements for telling anyone of the spill, Moody stated: "Beats me, I don't know, but I'm not going to ask...at this point."

At this meeting, Moody proposed that the group attempt to decontaminate or clean up Building 4060 themselves. He also suggested that the drum Lewis' crew had opened, and any other unlabelled drums in Building 4060, be sent to a commercial radwaste facility in Barnwell, South Carolina without identification as to the radioactive contents.

The transcript also reveals that Moody directed Wingo to erase that section of the tape concerning Building 4060, stating, "[H]ate to have that get into enemy hands..." However, Wingo retained the tape intact because he felt that

sooner or later the facts would come out, and the tape would show what was said about the September 18th radiation spill.

Moody went on temporary duty to St. Louis from September 22nd through 26th. Deputy Director Victor Dunn was left in charge. On September 22nd Lewis and another BEE member attempted to decontaminate Building 4060. Lewis became ill and did not return to the Base until September 29th.

On September 22nd, Dunn met with Lt. Col. John S. Swanson, Chief of Medical Physics at Wright-Patterson's Medical Center. Swanson recommended to Dunn that he identify the radioisotope and report the situation to Colonel Frederick R. Bode, Commander of the Medical Center, and to the Commander of the Base, Colonel Charles E. Fox.

NOTE: Colonel Fox was also the Commander of the 2750th Air Base Wing. However, the BEE Group was under the authority of the Medical Center, whose Commander reported to the Surgeon General's Office in the Air Force Logistics Command, located at Wright-Patterson.

Dunn did not take the actions Swanson suggested. On September 26th Swanson directed Dunn to take clothing contaminated on September 18th to the Air Force Institute of Technology radiation lab, where it was determined that the contaminant was Americium-241. Swanson then notified Medical Center Commander Bode, while Dunn notified Fox's office.

Later that day, Swanson and Dunn briefed Fox and his staff. Fox ordered that the Radioisotope Committee staff at Brooks Air Force Base, Texas, be notified. Swanson did so that same day.

NOTE: According to the Air Force, the Radioisotope Committee, located at Brooks Air Force Base, is an Air Staff level committee which provides administrative control of all radioactive material used in the Air Force except for nuclear reactors, nuclear weapons and components of those weapon systems. Under the broad scope license issued by the NRC to the Air Force in June 1985, the NRC delegated to the Air Force authority to regulate use of NRC-controlled radioactive materials on Air Force installations, including Wright-Patterson. The staff of the Radioisotope Committee, comprised of three health physicists, reviews all routine requests from Air Force organizations for use of radioactive materials and issues permits to qualified users. These permits are the Air Force equivalent of an NRC license.

B) Findings of the NRC

Region III of the NRC, located in Chicago, Illinois, conducted an inspection of the circumstances surrounding the September 18th Americium spill. Region III found that the Air Force's failure to report the incident within 24 hours violated NRC regulations set forth in 10 CFR 20.403(b)(3) and (b)(4).

NOTE: These regulations state: Each licensee shall, within 24 hours of discovery of the event, report any event involving licensed material possessed by the licensee that may have caused or threatens to cause a loss of one day or more of the operations of any facility affected, or damage to property in excess of $2000.00. Section 223 of the Atomic Energy Act provides for a fine of not more than $5,000 or imprisonment for not more than two years, or both, for anyone who is convicted of willfully violating, attempting to violate, or conspiring to violate these regulations. This criminal penalty provision is codified at Title 42, section 2273 of the United States Code.

On February 5, 1987, at the NRC's direction, Moody, Dunn and Lewis were removed from the performance or supervision of

NRC-licensed activities based on their involvement in the September 18th incident and aftermath.

On February 19, 1987, the NRC's Office of Inspection and Enforcement issued a Demand for Information to the Air Force based on Region III's findings. The Demand letter cited the fact that the NRC first became aware of the spill on September 26th and questioned whether the Air Force would provide "complete, accurate, and timely reports to the NRC as required." The Demand letter, deemed a "significant enforcement action" by the NRC, was sent "to determine whether the USAF license should be modified or other enforcement action taken."

The NRC's Office of Investigations also conducted an investigation of allegations of misconduct on the part of Moody, Dunn, Lewis and other Air Force personnel. On October 16, 1987, its Report of Investigation, dated September 30, 1987, was referred to the Justice Department and United States Attorney for the Southern District of Ohio for their consideration of possible violations of federal criminal law by certain Air Force personnel.

C) Analysis

It is clear from the tape recording of the September 19th BEE meeting that Moody, Dunn and Lewis all understood the seriousness of the radiation spill at the time it occurred. Yet for over one week following the spill, they took little or no action to alert the appropriate Air Force personnel concerning the full extent of the problem inside Building 4060. This was a necessary step to ensure that the NRC was properly notified and given the opportunity to carry

83-464 0 - 88 - 7

out its obligation to assure adequate protection of the public health and safety.

Moody's handling of this matter is especially disconcerting in light of the fact that he had just taken over as Director of the Base unit responsible for the storage, handling, and disposal of radioactive waste. Facing his first major challenge, Moody directed that the radiation problem be kept confidential and handled within the Group. He then left town for a week, never having notified his superiors about the spill.

During Moody's absence, Mr. Dunn was left in charge. Dunn ignored instructions to identify the radioisotope involved in the spill and report the accident to the Medical Center and Base Commanders.

After Lewis unsuccessfully attempted to clean up the contamination himself, he took sick leave for several days.

Because of this apparently deliberate decision not to notify appropriate Air Force authorities, the NRC's Region IV Office, located in Arlington, Texas, was not contacted until September 26th, eight days after the original spill. Subsequent statements of NRC personnel, however, have made it less likely that the actions of Moody, Dunn, and Lewis can be reviewed for potential civil or criminal liability.

Documents acquired from the NRC reveal that two key employees in NRC's Region IV Office recently told the federal prosecutor that there was either no requirement for the Air

Force to report the original spill to the NRC, or such requirement was "marginal" at best. Moreover, both employees believe that the NRC's reporting regulations are "vague, ambiguous and leave room for interpretation." This view of the NRC's reporting requirements clearly conflicts with the earlier inspection findings of Region III and the resultant enforcement action taken by the NRC's Office of Inspection and Enforcement.

In the words of one NRC investigator, Region IV has taken a position that "significantly impact[s] on the chances for a successful prosecution of certain personnel involved in the Am-241 spill at WPAFB." (See Section III for further analysis.)

II. THE BASE'S COMMUNICATIONS WITH THE NRC: August 20 - October 24, 1986

A) Background

On August 20, 1986 inspectors from the NRC's Region III conducted an unannounced inspection at Wright-Patterson to investigate allegations made by J.C. Haynes in a sworn statement to the FBI. Region III has inspection jurisdiction over Wright-Patterson.

NOTE: J.C. Haynes is a jeweler who at one time previously had been licensed by the NRC to possess 25 curies of Americium-241. Haynes had used the Americium to irradiate diamonds at his workshop in the Newark, Ohio area. After an investigation by the NRC's Office of Investigations, Haynes was arrested in 1985 for possession of Americium in excess of his license and making a material false statement to the NRC. He was sentenced in July 1986 to five years probation

on these two counts and prohibited from dealing in nuclear materials.

In his April 1986 FBI statement, Haynes alleged that during the 1970's he had transferred an unknown quantity of unsealed Americium-241 (via contaminated articles) to the Base Radiation Safety Officer, James Lewis, and that the material had been added to other authorized waste and disposed of by the Base. Haynes also alleged that during the same period, Wright-Patterson had found 100 curies of Americium-241 from an unknown source and had transferred it to the Mound Laboratory (a Department of Energy-owned, contractor-operated facility located in Miamisburg, Ohio).

The Region III inspectors checked Base inventory records and interviewed James Lewis, who provided the NRC with a signed statement denying the allegations. The latter were not substantiated by the inspection.

Prior to departing the Base on August 20th, the NRC inspectors orally briefed Mr. Thomas Shoup, Deputy Base Civil Engineer, who stood in for Base Commander Fox, on the results of their investigation of the Haynes allegations. Dunn and Lewis were also present at this outbriefing.

Following the inspection, Region III staff continued to evaluate the allegation concerning the transfer and receipt of Haynes' material. During the month of September 1986, Region III explored the possibility of securing a polygraph of Lewis. Finally, it was decided to request the Air Force to investigate the veracity of Lewis' statements. Mr. Bill Axelson, Chief of the Nuclear Materials Safety and Safeguards

Branch in Region III, reached Shoup by telephone on September 22, 1986.

Shoup prepared two memoranda in November 1987 concerning his involvement with these events. They both state that Axelson requested that the Air Force administer a polygraph to Lewis. Shoup replied that he would be surprised if Base Commander Fox would direct such a test solely on the basis of Axelson's phone call.

Following this call, Shoup interrupted a meeting Fox was having with other Base personnel, including the head of the Office of Special Investigations. It was decided that the Office of Special Investigations should follow up with the FBI to see if a polygraph of Lewis was appropriate. Shoup's November 3, 1987 memorandum is ambiguous as to whether Shoup mentioned the name "J.C. Haynes" to Fox and the others in attendance at the meeting. His November 20th memorandum states that because he could not recall J.C. Haynes' name at the meeting, he returned to his office and called the Office of Special Investigations with Haynes' name and other information about the NRC's inspection.

The Base Office of Special Investigations represents that it has no record of Shoup's September 22nd phone call.

On September 26th and 29th, Shoup attended meetings called by Fox concerning the September 18th radiation spill. Shoup recollects that at the first meeting, Lt. Col. Swanson mentioned that the Americium could be a by-product of Plutonium or come from several other possible sources. Despite having recently heard from the NRC about an

allegation that Haynes' Americium had been received by the Base, Shoup did not ask any questions at either meeting about whether there might be a connection to the radiation spill. Shoup's memoranda do not reflect whether, at any time following the September 22nd phone call from Axelson, Shoup spoke to Fox about a possible connection.

Victor Dunn attended at least two emergency meetings called by Fox: on September 26th and October 1st. Despite the fact that he, too, had recently heard Lewis deny he had received Haynes' Americium for storage and disposal, Dunn did not speak up to question whether there might be a connection between that allegation and the September 18th spill.

On October 1st, Axelson contacted Fox by telephone in order to conduct an official "exit" meeting prior to the release of the inspection report on the Haynes allegations.

According to Axelson, he explained to Fox the Haynes allegation concerning the transfer of the Americium to the Base and the results of Region III's inspection. Axelson said that Lewis had denied receiving any radwaste from Haynes, but that the inspectors felt uncomfortable with Lewis' statement. Axelson told Fox that there was not much more the NRC could do, and suggested that Fox pursue the matter further with the Office of Special Investigations. According to Axelson, Fox agreed to do so.

Fox has stated that, during the above phone conversation with Axelson, he did not mention the September 18th radiation spill and ongoing cleanup because he believed the NRC was already fully aware of the incident.

According to Fox, Axelson did say on October 1st that the NRC was not pursuing the investigation of Lewis any further, but that Axelson indicated he still had reservations about Lewis' veracity. Fox requested a copy of the NRC's inspection report and stated that he was going to continue looking into the matter.

Region III's inspection report was approved by Darrel Wiedeman, Chief of the Nuclear Materials Safety Section 1, on October 9th and transmitted to Fox with a cover letter from Bill Axelson dated October 14th. Fox did not receive the inspection report from Region III until on or about October 20th.

Fox believes that Shoup made some phone calls to ask for the report. Axelson recollects that sometime between October 1st and October 20th, Shoup called him regarding the status of the report. Axelson replied that it was completed and should be in the mail. Shoup did not mention the radiation spill at Wright-Patterson to Axelson in this phone call.

NOTE: Shoup has no recollection of making any phone calls to the NRC about the report. Shoup does recall that on October 2nd Fox asked him if the report had come in. Shoup responded that, to his knowledge, it had not.

Upon receipt of the inspection report, Fox directed Vice-Commander Stephen Kollar to contact the Office of Special Investigations about Lewis.

NOTE: The Office of Special Investigations represents that it began an investigation of Lewis on or about October 21st. However, in light of Shoup's assertion that he contacted the Office of Investigations the month before, it is not possible to resolve this issue on the evidence adduced.

Not until Fox received the inspection report from the NRC did he inform Base and contractor personnel tasked with the Building 4060 cleanup project about his communications with the NRC concerning Lewis' alleged receipt of Haynes' Americium. This occurred after the second spill of the unsealed Americium-241 on October 6th when Dr. John Ricci inhaled about 8 nanocuries of Americium, thereby raising his risk of contracting cancer. The evidence shows that the amount of Americium the Base cleanup crew encountered on October 6th was far greater than had been expected.

NOTE: The NRC has calculated that, at this time, the Base was in possession of approximately 2 curies of Americium-241 in unsealed form. This amount was in excess of the amount of radioactive material which the Base was authorized to possess under its the license.

According to Ricci, the cleanup crew would not have opened drums in Building 4060 on October 6th if they had known that there might be multi-curie quantitites of Americium inside. Ricci stated that the key information about J.C. Haynes was his previous involvement with multi-curie quantities of Americium. Ricci further stated: "As far as knowing about it in advance, we obviously didn't....I really didn't know the reasons, but that information would have been useful had we received it."

It was not until October 24, 1986 that inspectors from NRC Region III went to the Base to determine the extent of the radiation problem and nature of the cleanup effort.

B) NRC's Findings

In its Report of Investigation dated September 30, 1987, the NRC's Office of Investigations concluded:

> On October 1, 1986, Fox knowingly and willfully withheld material information about the spill from the NRC when he was asked by Axelson to conduct an investigation into Lewis' denial of receipt and storage of [Americium-241].

The information in question was the occurrence of the September 18th radiation leak. The NRC found that had this information been known, it "would have...potentially precluded the second opening of the barrel, which led to the most severe contamination of the facility, as well as a lung uptake by Ricci."

C) Analysis

Despite the foregoing facts which demonstrate Fox's failure to report this information to the NRC, it is the NRC itself, again, which has undercut potential civil and criminal remedies that might otherwise be applicable.

It seems that on at least two occasions during October 1986, Darrel Wiedeman and other technical staff members in the NRC's Region III learned of the radiation spill at Wright-Patterson but did not react to the news. Moreover,

Region III got such information prior to the second spill on October 6th, when Dr. Ricci inhaled Americium.

The NRC admits that on or about October 1st, a Dayton, Ohio broadcast news station inquired of the Region III Public Affairs Office whether Region III had any information about a spill at Wright-Patterson. The Public Affairs staff asked technical managers in the Region III Nuclear Materials Safety and Safeguards Branch whether they had any information on such an incident, and whether that was why a Region III inspector was recently onsite. The technical managers responded that they were not aware of any spill and the inspector was onsite in August 1986 to follow up on an allegation concerning J.C. Haynes' radwaste being transferred to Wright-Patterson.

The Public Affairs Office staff then informed the news organization that Region III had no knowledge of any reports of a spill at Wright-Patterson. Had Region III investigated this matter further, the second spill may have been averted.

NOTE: It was during this time that Wright-Patterson began to receive inquiries from broadcast news stations in the Dayton area concerning a radioactive leak and alleged coverup. The Base issued no formal press release. Rather, the Base Office of Public Affairs responded to these inquiries with a six sentence statement. That statement confirmed that "unexpected radiological readings" had been obtained during an inventory, but that there was "no danger to base personnel or to the public".

Moreover, on October 15th, Captain Lawrence Donovan, a member of the Air Force Radioisotope Committee staff, telephoned William J. Adam, Senior Health Physicist/Licensing in Region III, to request a list of suppliers of

Americium-241 in unsealed form in the Dayton area. According to Adam, he told Donovan that Region III considered one major "source" of such material to be J.C. Haynes, but Donovan stated that Haynes had already been discounted, although he gave no reason why. Adams asked why such a list was needed. Donovan replied that Wright-Patterson had a "small spill" involving Americium-241 and that they were trying to determine the original source of the material.

Adam then prepared a list of sources and called Donovan. According to Adam, he asked Donovan whether this incident had been reported to the NRC, and Donovan replied that the Air Force had not made the determination that this was a "reportable incident".

After this conversation, Adam informed Darrel Wiedeman and another supervisor of the spill. Wiedeman was provided with Donovan's name and telephone number. Neither Wiedeman nor the other supervisor took any further action.

Wiedeman's inaction appears inexplicable. He had, just days before, reviewed Region III's inspection report concerning Lewis' denial of his receipt of Haynes' Americium. According to the current Regional Director of Region III, this is not the standard of performance he expects of his supervisors.

These events demonstrate that Region III had the very information that Base Commander Fox is alleged to have willfully withheld, yet failed to react. Given these facts, it appears that the NRC itself has lessened the likelihood of possible civil or criminal proceedings against Fox for

alleged violations for failing to report required information to the NRC.

III. RADIOISOTOPE COMMITTEE'S COMMUNICATIONS WITH THE NRC: September 26 - October 23, 1986

A) Background

On September 26th, the Executive Secretary of the Radioisotope Committee, Lt. Col. John G. Burr, learned from Lt. Col. Swanson's phone call that there was a very high level Alpha release at Wright-Patterson and the early determination was that the material was Americium-241, but Plutonium-239 could not be ruled out.

Burr conveyed this information to Captain Lawrence Donovan, and directed him to contact the NRC's Region IV to make them aware of the event. At that time, the third Radioisotope Committee staff member was Major James Dunlap. On or about October 2nd, Lt. Col. David G. Wood replaced Burr as Executive Secretary.

NOTE: The Radioisotope Committee acts as the single point of Air Force contact with the NRC on all aspects of licensing. According to the Air Force, every incident or accident involving NRC regulated materials is to be reported to the staff of the Radioisotope Committee and then, in turn, by that staff to the NRC according to NRC regulations. During September and October 1986, the Radioisotope Committee reported directly to the NRC's Region IV in Arlington, Texas.

During the afternoon of September 26th, Donovan attempted to reach Jerry Everett, Region IV's Nuclear Materials Safety Section Chief, but was not successful. It was not until late that afternoon that Major Dunlap spoke

with Everett. Dunlap did not convey the information Swanson had given Burr.

Instead, Dunlap told Everett of "minor" leakage on some low level waste drums at Wright-Patterson. At that time Everett had high regard for the Air Force as a licensee. He treated the call as an informational one and expected to be kept informed. Because Dunlap did not tell Everett that a high-level Alpha release of Americium-241 had occurred, Everett did not call Region III to request an inspection of the Wright-Patterson incident.

On October 3rd, Charles L. Cain, a Radiation Specialist in Region IV, contacted Lt. Col. David Wood, the new Executive Secretary of the Radioisotope Committee, by telephone. Cain was the designated Region IV staff contact concerning the Air Force's broad scope license from the NRC. Wood characterized the incident as "minor" despite the fact that he had already been provided with information that the contamination in Building 4060 was "widespread" and the estimated cleanup cost was $100,000.

Major Dunlap contacted Everett on October 6th and continued to characterize the incident as "minor".

On the afternoon of October 6th, a three-member crew led by Dr. Ricci opened up the drum containing the unsealed Americium, causing widespread contamination within Building 4060. It initially appeared that a contractor employee had received internal contamination of Americium. But later test results confirmed that it was Dr. Ricci, not the contractor

employee, who had been contaminated by inhaling the Americium.

On October 9th, Dunlap visited the Newark Air Force Base, just over an hour away from Wright-Patterson, and met with the Newark AFB Radiation Safety Officer.

NOTE: No evidence has been adduced which shows that Dunlap also visited Wright-Patterson on this trip to Ohio. There is also no known evidence that Wood or Donovan travelled to Wright-Patterson before October 24th to get a first-hand look at the problem.

According to Dunlap, though he heard about J.C. Haynes from Newark AFB's Radiation Safety Officer during his October 9th visit, he did not learn that the Americium-241 spill at Wright-Patterson might be related to Haynes until October 15th.

By October 10th, Wood knew of the second spill of Americium in Building 4060 and that Air Force officials were surpised at the large amount of material in unsealed form. He also knew it was the largest Americium spill seen in the last several years by contractor personnel assisting with the cleanup, that the estimated disposal costs had risen to $250,000, and that swipes from the October 6th spill were in the one million counts per minute (cpm) range.

On October 10th, Wood telephoned Jerry Everett at Region IV, but did not provide any of the above details. According to a January 22, 1987 sworn statement Everett provided the NRC's Office of Investigations, Wood "continued to play it down." Wood and Everett discussed the reporting requirements

of 10 CFR section 20.403, but Wood said that the event did not qualify as a reportable incident.

NOTE: Each licensee is required, within 24 hours of discovery of the event, to report any event involving licensed material possessed by the licensee that may have caused or threatens to cause a loss of one day or more of the operations of any facility affected, or damage to property in excess of $2000.00. Section 223 of the Atomic Energy Act provides for a fine of not more than $5,000 or imprisonment for not more than two years, or both, for anyone who is convicted of willfully violating, attempting to violate, or conspiring to violate this regulation. This criminal penalty provision is codified at Title 42, section 2273 of the United States Code.

On October 15th, Wood also learned about the alleged Haynes connection to the Wright-Patterson Americium spills. He further knew that the gross estimates of material in the Building were in the curie range. Wood immediately notified his supervisor, Dr. Bryant D. Mauk, the Chairman of the Radioisotope Committee stationed at Bolling AFB. However, despite the fact that Wood knew the Americium on the Base exceeded the amount Wright-Patterson had ever been authorized to possess, and that the material was probably from an illegitimate source, Wood did not report this information to Region IV.

On October 15th, Captain Donovan spoke to William J. Adam of Region III to request a list of Americium suppliers in the Dayton area. Donovan told Adam there had been a spill of Americium at Wright-Patterson. According to Adam, Donovan stated that the Air Force had already discounted Haynes as a source.

NOTE: No other evidence has been adduced which shows that the staff of the Radioisotope Committee had, at this time, dismissed Haynes as a possible source.

On October 16th, Jack Whitten of Region IV called Captain Donovan at Everett's request. Donovan told Whitten of his October 15th phone call to Region III. According to Whitten, Donovan stated that:

> the contamination incident was growing by leaps-and-bounds and that the amount of contamination already discovered would [be] above any authorization for americium authorized by NRC's old license to Wright-Patterson or the Air Force Broad License permit to same. He indicated that he thought that this material had somehow gotten on the Air Force property without consent or the Air Forces [sic] knowledge, and the Air Force planned to get to the bottom of this little mystery.

Whitten passed this information on to Everett. According to Everett's sworn statement of January 22, 1987, he responded that "we had been had". Though Everett instructed Whitten to get more information from Donovan, he did not contact the NRC's Region III to provide that office with the information received from Donovan or to request that Region III conduct an inspection at Wright-Patterson.

On October 17th, Cain spoke with Lt. Col. Wood and Captain Donovan. According to Cain, he was told that it was not clear whether Wright-Patterson's possession limit for Americium had been violated. The incident was still being characterized as minor. Cain was told that contamination spread was minimal and that cleanup was underway and would soon be completed.

Region IV officials again failed to contact their colleagues in Region III after this phone call to discuss apparent discrepancies in statements provided to them by the Radioisotope Committee staff concerning the nature and extent of radiation contamination at Wright-Patterson.

Region III was again informed of the radiation spill at Wright-Patterson in a phone call from an FBI Special Agent on October 23rd. Axelson and Wiedeman of Region III telephoned Cain in Region IV. According to Cain, when he contacted Wood on October 23rd, Wood still understood the incident to be minor. Wood stated that the waste probably belonged to the Air Force, but some question remained.

B) The NRC's Findings

As previously mentioned in Section I of this study, Region III's inspection report of the September 18th incident found that the Air Force had violated 10 CFR 20.403(b)(3) and (b)(4) by failing to report the incident within 24 hours of its discovery. Region III has also concluded that though the first contact with the NRC was made on September 26th, "the incident was not accurately characterized until an NRC Region III Inspection on October 24, 1986."

Also, as noted in Section I of this study, the NRC issued a Demand for Information based on Region III's findings. The Demand letter stated that no notification was provided to the NRC as required by 10 CFR 20.403(b)(3) and (b)(4):

> On September 26, 1986, the NRC first became aware of the event when a member of the USAF Radioisotope Committee informed the NRC that a "minor" spill had occurred at WPAFB. The NRC was not informed that the incident involved americium-241 in unsealed form which WPAFB was not authorized to possess. Although the USAF had ample information in terms of the regulatory requirements for reporting this incident at the time to know that the characterization was inaccurate and incomplete, USAF personnel continued to characterize the contamination as "minor" to NRC officials until late October.

In its Report of Investigation dated September 30, 1987, the NRC's Office of Investigations concluded that Wood, Dunlap and Donovan had possibly committed violations of federal criminal law by knowingly and willfully withholding material information from the NRC which would have allowed Region IV to make an informed decision about the Air Force's reporting requirements.

C) Analysis

The cumulative evidence shows that Wood, Dunlap and Donovan did not pass on to Region IV all of the specific information they were receiving from personnel at Wright-Patterson concerning the radiation spills. However, as noted in Section I of this study, timely disclosure of accurate information by the Air Force is necessary to give the NRC the opportunity to carry out its public health and safety mission.

The Radioisotope Committee staff failed in the performance of their duties mainly because they omitted key

facts known to them in their discussions with Region IV's Charles Cain and Jerry Everett. The conduct of Lt. Col. Wood raises many questions. On October 2nd, Wood assumed responsibility for the administration of the Air Force's broad scope license from the NRC. By this date, he already had information at hand which suggested the September 18th Americium spill involved significant contamination within Building 4060.

The October 6th leak occurred during Wood's first week as Executive Secretary of the Radioisotope Committee. He was told by personnel supervising the cleanup that this was the largest Americium-241 spill they had seem in many years, and that it involved widespread contamination within Building 4060. Estimated cleanup costs were now put at $250,000.

Nevertheless, during the following days, Wood repeatedly chose not to convey these specific facts about the October 6th radiation leak to NRC Region IV. On October 17th, for example, Wood continued to downplay the event to Region IV's Charles Cain even though his colleague, Captain Lawrence Donovan, had already given Jack Whitten of Region IV a more accurate assessment of the problem at Wright-Patterson one day before.

In addition, Wood never breached the possibility to NRC Region IV officials of the alleged J.C. Haynes-James Lewis connection to the Americium spills at Wright-Patterson, information which Wood possessed as early as October 15th.

The actions of Wood's assistants, Major James Dunlap and Capt. Lawrence Donovan, during this period are also puzzling.

Jerry Everett and Charles Cain of NRC Region IV both have asserted that the Air Force tried to minimize the radiation accidents, so that Air Force personnel could handle the problem themselves without "interference" from the NRC or anyone else. In any event, it is fair to say that the staff of the Radioisotope Committee played a major role in the NRC's failure to respond quickly to the growing radiation contamination problem at Wright-Patterson.

At the same time, throughout the month-long period following Region IV's first learning that there had been a radiation spill at Wright-Patterson, Everett and Cain demonstrated an inexplicable lack of curiosity regarding the nature of ongoing events at the Base. Their failure to question Wood, Dunlap and Donovan in more detail over their characterization of the spill as "minor", along with their reliance, at face value, on the Radioisotope Committee's conclusion that the event did not meet NRC reporting requirements represents a serious regulatory breakdown.

Even when Everett realized on October 16th that Region IV "had been had", he did not contact his colleagues in NRC's Region III Office to suggest that an inspection be made of the problem at Wright-Patterson. As a result, Everett's and Cain's neglect to pursue these leads contributed in a large part to the NRC's failure to respond in a timely fashion.

NOTE: In addition, as stated previously in Section II, Region III's failure to react to the two communications containing information about the spill at Wright-Patterson is another example of the NRC's regulatory breakdown in this case.

However, in spite of the clear factual record that Wood, Dunlap and Donovan failed to report material information to the NRC as required, the NRC's own handling of this matter has again made it less likely that these failures will be the subject of potential civil or criminal proceedings.

As stated previously in Section I, Jerry Everett and Charles Cain of NRC Region IV recently told the federal prosecutor that their own agency's reporting regulations can be described as vague, ambiguous and open to interpretation. Everett believes that when the NRC and Air Force were engaged in a lengthy negotiation over the terms of the broad scope license, "the NRC had not communicated to the USAF a full interpretation of how the regulations were to be implemented."

Although Everett believes that the October 6th Americium spill was definitely "reportable, due to the concentrations of Am-241", Cain told the federal prosecutor that "it is open to interpretation whether they (USAF) were legally required...to report anything to the NRC." Cain further stated that "all of 10 CFR 20.403 is open to interpretation, and if he were placed on the stand, under oath, would respond in that manner" and that "he has registered his personal views with the NRC..."

An investigator affiliated with the NRC's Office of Investigations, which referred the results of its investigation into this matter to the federal prosecutor, has concluded:

> Cain and Everett each provided information to [the federal prosecutor] that...may have fatally effected [sic] any possible further criminal investigation of certain USAF personnel at Brooks Air Force Base (AFB), and significantly impacted on the chances for a successful prosecution of certain personnel involved in the Am-241 spill at WPAFB.

The immediate implication of the statements by Cain and Everett is obvious. Penalties are unlikely to be imposed for violation of NRC regulations when the NRC's own representatives believe those regulations are ambiguous and open to interpretation.

In addition, Cain has essentially concluded that the Air Force, in fact, did not have any legal obligation to report either one of the Americium spills to the NRC. This admission again would undercut any attempt to impose civil or criminal penalties upon Wood, Dunlap or Donovan.

Finally, if the Air Force had no affirmative duty to report the September 18th spill, then there would be little point in civil or criminal proceedings against Moody, Dunn or Lewis on allegations that they conspired to cover-up that incident.

The comments made by Cain and Everett regarding their interpretation of the NRC's reporting regulations are disconcerting. It raises questions about their ability to properly evaluate information from all licensees in Region IV, including the Air Force, about their compliance with federal requirements for possession of radioactive

materials. Moreover, there seem to be opposite viewpoints regarding the interpretation and enforceability of NRC accident reporting requirements between NRC employees in Region III and their colleagues in Region IV. These sharp and inexplicable differences of opinion suggest serious concerns about the effectiveness of the NRC's entire program for nuclear nonreactor licensing and inspection.

In this case, at least, the only thing that Region IV Materials Licensing personnel have effectively done is to seriously impair the civil and criminal investigations into possible violations of the NRC reporting regulations by Air Force personnel.

IV. THE WINGO STORY

Rather than being commended as someone who stood out in this whole episode, Senior Master Sergeant (SMSgt) Wendell Wingo has become another victim in the Wright-Patterson fallout. An enlisted man with 23 years of service, Sergeant Wingo saw his career threatened by a negative and perhaps vindictive performance evaluation written by Lt. Col. Moody, Wingo's superior officer -- the officer who had ordered Wingo to destroy the tape recording of the incriminating BEE staff meeting on September 19, 1986. Wingo did not destroy the tape because he wanted to preserve documentation of what actually transpired within the BEE Group.

In January 1987 the NRC's Office of Investigations uncovered the existence of the tape recording while conducting its investigation into the Wright-Patterson spills of Americium.

On August 31, 1987, Moody's last day as BEE Director before taking early retirement, Moody wrote a personnel review of SMSgt Wingo, downgrading Wingo's performance rating to a "6" (on a scale of "9"). This action effectively ruined any chance that Wingo had for promotion to Chief Master Sergeant, the second highest rank for an Air Force enlistee. Because of this action, Sergeant Wingo felt he had no choice but to opt for early retirement.

NOTE: In 12 of 13 prior reviews dating back to 1976, Wingo achieved the highest mark possible (a "9"). In a 1979 review, Wingo was given an "8".

Moody sought to justify Wingo's low rating, in part, through subjective phrases such as "he [Wingo] needs to actively promote harmony among fellow workers", "heal past wounds", and "make a fresh start". These comments fly in the face of Wingo's previous evaluations, which contain glowing praises from Moody's predecessors, as well as endorsements from Major and Brigadier Generals, all of whom had recommended Wingo for promotion.

Even a casual observer can see the possible retributory motive on Moody's part. Certainly the "wounds" Wingo must "heal" belong to the officers whose voices and questionable conduct were preserved on tape, not to mention the adverse publicity brought to bear on Base officials once the Americium incidents were publicly exposed.

There might be some satisfaction in knowing that, in the end, justice would prevail in SMSgt Wingo's case. Indeed, at

one point it appeared that way. Through the intervention of Senator Glenn, and the assistance and cooperation of Col. Stephen Kollar (current Base Commander at Wright-Patterson), this tainted review was removed from Wingo's record. It is unclear whether Wingo would have been given the option to remain on active duty. In any event, this issue has been rendered moot.

Shortly after the Air Force expunged the evaluation from his personnel file, SMSgt Wingo was ordered relieved of all bioenvironmental engineering duties and reassigned to the Office of the Base Medical Center Director, Col. Roadman. This reassignment, after Wingo had spent the past twelve years working in the BEE unit, was ordered by Col. David A. Nuss, Moody's successor as Director of the BEE Group. Nuss arrived at Wright-Patterson in February 1983. No reason or explanation was given for this transfer.

Due to this sudden reassignment out of the BEE Group, SMSgt Wingo has decided to reaffirm his early retirement, which, with the accumulation of sick leave, can begin in early May.

V. UPDATE ON KEY PERSONNEL

A) Air Force

Wendell Wingo has been transferred from the BEE Group to the Medical Center and will retire from the Air Force in 1988 as a Senior Master Sergeant.

James Lewis retired in 1988.

Victor Dunn remains employed as a civilian in the BEE unit, though his title recently was changed from Deputy Director to Staff Hygienist.

John Ricci retired from the Air Force in 1987 as a Major. He is now employed as a civilian with Wright-Patterson, replacing Lewis as the Base Radiation Safety Officer.

Lt. Col. John Swanson remains Chief of Medical Physics at the Wright-Patterson Medical Center.

Maynard (Gar) Moody retired from the Air Force in 1987 as a Lt. Colonel.

Thomas E. Shoup remains as Deputy Base Civil Engineer at Wright-Patterson Air Force Base.

Charles Fox is now Vice Commander of the Ogden Air Logistics Center, Hill Air Force Base, Utah and has been promoted to Brigadier General.

Colonel Stephen Kollar has been promoted to Base Commander.

Colonel Frederick Bode has been replaced as Commander of the Medical Center.

Lt. Colonel John G. Burr is currently Chief of the Radiation Division of the Occupational and Environmental Health Laboratory (OEHL) at Brooks AFB.

David Wood remains the Executive Secretary of the Radioisotope Committee and has been promoted to Colonel.

James Dunlap remains on the staff of the Radioisotope Committee and has been promoted to Lt. Colonel.

Lawrence Donovan remains on the staff of the Radioisotope Committee and has been promoted to Major.

B) NRC

Charles Cain was promoted to a GS-15 level in December 1987 and is now Chief, Nuclear Materials Licensing Staff, Nuclear Materials and Emergency Preparedness Branch, Region IV.

Jerry Everett is now Chief, Physical Security Station, Radiation Protection and Safeguards Branch, Region IV.

Jack Whitten is now License Reviewer, Nuclear Materials Licensing Staff, Nuclear Materials and Emergency Preparedness Branch, Region IV.

Bill Axelson is now Chief, Technical Support Staff, Region III.

Darrel Wiedeman has remained Chief, Nuclear Materials Safety Section I, Region III.

William J. Adam is now Agreement State Program Officer, Region III.

C) Other

J.C. Haynes is now serving a three year sentence in an Ohio prison on charges unrelated to the radiation spills at Wright-Patterson.

Transcript of September 19, 1986 Bio Environmental Engineering (BEE) Group meeting chaired by Lt. Col. Maynard G. Moody, Director of BEE, which contains references to Bldg. 4060 and/or the radiation program caused by the release of Am-241.

Side A (Copy

Counter

54 Lt. Col. Moody: So what's happening?

Vic Dunn
Unknown: You want to tell everybody the big thing?

Lewis: You have a good perspective of it.

Moody: The rest of them don't.

Lewis: I mean, I wanted Vic to tell it.

(Laughter)

Vic Dunn: They ruined my building, that's what they did.

Lewis: Yesterday now, ...I'll tell it...(laughter). We have an...(laughter) Rather than have a lot of stuff going around.... We've been trying to get a shipment

Lewis (cont'd): of radioactive waste--we had some drums that we did not know what was in them--and the process of moving from one building to another, and this thing...and changing the records from one system to another, we did not have an accurate inventory of everything that was in these drums, so we went over yesterday with the intention of checking one of the drums out or some of the drums out, find out what was in it and

77 we opened the wrong barrel, we got some contamination in building 4060. Now, as a result of that, we're going to have to get to work and clean it up and I guess...ah...the contamination is confined to that one building and its isolated...ah...we're going to get to work on it as soon as we can get stuff together and see how much if not all of it we can get cleaned up. And we're going to, in the meantime, get rid of whatever we can get rid of, instead of waiting any longer.

92 Moody: Well, we hope we can clean it up one time and get rid of it and not contaminate it when we open the next barrel....

Lewis: Yes.

Moody: Or recontaminate it.

Lewis: Yeah...(laughter).

Post?: What's the chance of the next barrel or one of these barrels being worse than that one?

Lewis: I don't think it would be.

(Laughter)

~~Post:~~ DUNN If it is, I don't want it any worse than....

Lewis: Well...it isn't all that bad, but I...it surprised me that we ran in to that.

Post?: How...(unintelligible)...we open the barrels and if there is that material in it, and keep it from spreading like it did?...(unintelligible).

Moody: Educate me a little bit further. Why we gotta open the barrels? The barrel... ~~(unintelligible)~~...Bear with me a little bit.

Lewis: That would be question number one, we weren't certain what was in them.

Moody: Why do we have to be certain what's in them? Why can't we just say ~~stored~~ assorted radioactive waste?

Lewis: That's....

~~Moody~~ Dunn: Go ahead.

Lewis: They...places that receive the stuff now.

Moody: There's only one, isn't there?

Lewis: Yeah.

Moody: ...(unintelligible)...South Carolina.

Lewis: Yeah...Barnwell...Barn...they want a listing of what you're throwing away and we could have tried that, which would have been the best route to take....

~~Dunn~~ Post 2: Ah...we try that with any of the other barrels?

Moody: That's what I was wondering?

Lewis: Why don't we?

Moody: We try it with one barrel and see if we can get away with it and if we don't...you know...let's assume we clean everything up good...let's get rid of the stuff we know what we've got,(that's probably going to take us six months.).(unintelligible)...and after we got

SOMEONE ELSE? No

Moody (cont'd) rid of that, go with one barrel of what we don't know and try and fake it and see if we can make it. You know, fake it conservatively.

Lewis: And ah...

Moody: If that works, then go one at a time. If it doesn't work, then fully protect yourself and open the barrels one at a time.

Lewis: Well, fortunately, we were suited out and...ah...we confirmed the contamination, that's one thing, one plus I feel...

Moody: We get that sucker outside the building then it'll be serious because we got to tell them then.

Post?: There is no requirements for telling them?

141 Moody: Beats me, I don't know, but I'm not going to ask... at this point. If we can clean it up ourselves and get it decontaminated...what the hell? If we can't get it decontaminated, we'll tell, face whatever consequences come. I don't know.

~~Unknown~~ LT VINCENT: Someone might ask the question, make the comment, how much did get outside?

83-464 O - 88 - 8

149 Moody: What we know from monitoring outside the building... ah...does not make it above the acceptable background ...is that a true statement?

Lewis: (unintelligible)

Moody: Is that 200 count per minute...and 500 is acceptable, or did you say 175 was acceptable?

Dunn ~~Unknown~~: I trying to...counts per minute...but what did I say in this area?

Sgt Kelmes ~~Dunn?~~: 2-300 disintegrations per minute, which would equate out to 150 counts per minute per 100 square centimeters, and 60% of 150 we're talking about... (unintelligible).

Dunn ~~Unknown:~~ Okay, but that is true, but the one factor we do not know what the source is, now that's all based on plutonium. Now...plutonium is usually a worse... well, I don't know....

Lewis: Plutonium would be....

Unknown: Worst case situation...so...ah.. I would think if

Dunn we are being more conservative by limiting the...I don't think at this point...(fades to unintelligible).

165 Moody: What do you get when you put down the check source on a ~~(unintelligible)~~. ON the PACIS.

Lewis: All we get is...23,000...20,000.

Kehres ~~Dunn?:~~ No, you get 1,500 counts per minute on the times 10 scale, so you're looking at approximately...

Lewis: 15,000.

171 Kehres ~~Dunn?:~~ 15,000.

173 Moody: I don't think I'd be awful scared at 200 counts per minute...at the door ~~(unintelligible)~~...you can to out of the check source at 15,000 counts per minute... (unintelligible)...as you know.

VINCENT ~~Post?:~~ I guess what I'm questioning is that's what...we get tod. when it Raining. ~~(unintelligible)~~...I wonder if it wouldn't be a wise move to take some soil samples?

Moody: I think we did...didn't we?

Lewis: We have one, we can get a couple more and enter the ground.

Moody: I think you're right though, Dba (Vincent) we ought to start out next time, each time we go there...we ought to monitor outside...~~(unintelligible)~~. That's a good point.

(Unintelligible).

Moody: We'd like to be able to...if all else fails....

Lewis: Yeah.

Moody: So....

~~Unknown~~ Dunn: I think, possibly Jim (Lewis) recommendation vaccuum first ~~a (unintelligible)~~...vacuum the...Randy brought this up....

190 Moody: Yep, alright, that's the last phase, if all else fails...almost finished...that'll be son-of-a-bitch... (unintelligible).

~~Dunn:~~ Kelnes Can you help me get a Hepa Vac ~~(Unintelligible)~~.

Post: For radioactive use?

~~Dunn:~~ Kelnes Don't tell them for what...I want a Hepa vacuum.

202 Moody: You know, you say we can't decontaminate it, then we best not get their vacuum cleaner...but if we can

Moody (cont'd): decontaminate it successfully...I assume we can if we can decontaminate our instruments...then, ah... you know we get the Hepa vacuum cleaner, throw the ~~gophers~~ filters in the bag, clean the darn thing, give it back to them and we haven't done anybody any harm.

Post: (Unintelligible).

~~Dunn:~~ Kehres: (Unintelligible).

207 Moody: We had some toxic particles...but we're not gonna...we're not gonna say where...that's a... fair statement.

~~Dunn:~~ Kehres: I need your help on this since you....

Post: 16 gallon or 1 gallon back pack....

~~Dunn:~~ Kehres: (Unintelligible). Probably a 16.

Moody: We hope the bigger you can get the[l]..get it all in one swell swoop. moody

Post: Okay.

~~Unknown:~~ Vincent: Who's responsible for that building?

Lewis: Vic Dunn (~~Unintelligible~~, laughter).

Moody: We own the building...we have the only keys...so there's no way nobody's gonna get in and ah, Randy said it's even worse than that, it's inside a munitions area and they got to let us inside there to start with so...it's fairly well controlled.

Post: If we...if we did borrow it and ah...they wouldn't need to never find out...(unintelligible).

228 Moody: (Col Russell, HQAFLC EGB Environmental) Harry...an, and others. A office should know, but nobody else...and he says...(unintelligible). well get DPMI to do it.

Post: What kind of time frame we talking about, this Monday?

Moody: Monday yes. Absolutely, at the latest. If you can spare him some Tivek coveralls, a couple of sets while you're at it...(unintelligible). That would maybe... The asbestos team has some don't they?

~~Post~~ Dunn: Yeah, ones ~~thing you can...~~ these using are all tied up.

Moody: Doesn't matter, anything...(unintelligible). any kind of disposable coveralls.

(Unintelligible).

moody. something that can be thrown away (unintelligible)

Vincent: As things stand now we don't have any alpha detectors

Lewis: We'll have that...

~~Dunn:~~ Kehres: Jim'll take care of that.

Moody: (Unintelligible). Tell a little story to Disaster Preparedness

~~Post?~~ Dunn Anyone...I think we have two clean ones, but we need one that operates to check.

~~Dunn:~~ Kehres One just suddenly died on you?

~~Unknown:~~ Dunn It died...Mark had it...and they said is this thing working? It should be able to pick up, cause I was checking my hand, it would to up to a hundred, maybe a hundred fifty with my gloves off, then all of a sudden....

Moody: ~~Get~~ Stay out of my shower you asshole.

(Unintelligible, laughter, chatter).

~~Dunn:~~ Post Maybe you burned out the thing...(unintelligible, laughter).

~~Unknown:~~ Moody Just wait until your hair starts turning gray, then you're really in trouble.

Lewis: Look at mine.

Moody: When it starts falling out you're really in trouble (Unintelligible, group chatter).

262 Moody: Please ah...everybody...let's keep this confidential within this office until we cannot successfully solve the problem or until we find out we can't handle it and we gotta go ask for help, don't tell your roommate, girlfriends.

Wingo: It'll be on Channel 2.

Moody: That's it. I don't want it on Channel 2 (Chatter).

Moody: It don't want Mark Allen saying "how come you didn't tell me about this."

Reines: No, it'll be on Newscenter 7.

~~Lewis~~: Unknown: We followed News Channel 7 in the main gate... (laughter)...we thought he was leading us over.

272 Moody: What else is going on?

There are no further comments regarding the "radiation problem" until Side B.

Side B (On original tape, this side is A).

Moody: Please erase...please erase the first section on there about this...about our ah...radiation problems.

Wingo: I don't keep any of them...I've only got two tapes anyway.

Moody: Still, hate to have that get into enemy hands... right, so...(unintelligible)...see my log book after I come back from St. Louis. What's going on?

Lewis: In the world of health physics?

No further discussion on the tape regarding the "radiation problem."

WP 03 NOV 87 I

Memo For Record 3 November 87

Subj: Involvement in Project 4060 - NRC Investigation of Mr James Lewis

1. At the suggestion of Col Kollar, 3 November 87, I have reviewed my notes from events of more than a year ago regarding my involvement with the NRC Investigation of Mr James Lewis and the subsequent incident at facility 34060 (eventually called Project 4060). The following best describes my recollection of those events.

2. On 20 August 86, in the early afternoon, I was in the outer office of the 2750th Command Section awaiting an appointment, when I was approached by Ms Pat Pieroway regarding a call she had received. Mr Vic Dunn and Mr James Lewis of the Med Cen/SGB had requested a meeting with Col Fox, then Base Commander, so that he could be outbriefed by a visiting investigatory team from the Nuclear Regulatory Commission. Ms Pieroway was having difficulty finding an available slot on CC's calendar and asked me if I was aware of any such investigation, it's importance to CC, and if anyone else could take the outbrief due the tight schedule and unavailability of CV. I called Med Cen/SGB, spoke to Mr Dunn and Mr Lewis, and both passed on the word that the investigation was aimed at our record keeping, that no negative findings were discovered by the team, but NRC procedures required that the team outbrief an individual "in authority" before they depart. I passed this on to Col Fox and he requested that I meet with the NRC team as his representative. An appointment was then made with the team to outbrief me at Bldg 22, Area C later that same afternoon.

3. At approximately 1500, 20 August 86, I met in Col Scambilis' office with Messers Gary L. Shear and Roy Canniano of the NRC and Messers Vic Dunn and James Lewis of Med Cen/SGB. I do not recall which of the two NRC representatives did the talking, but the following is a summary of my recall and my notes:

A. Their investigation was predicated upon two allegations that had been levied against Mr James Lewis:

1) That from 1972-1974 Mr James Lewis had received non-base produced contaminated articles such as gloves, clothing, etc that had been contaminated with Americium 241.

2) That during the period 1972-1974, WPAFB had found 100 curies of Americium 241 from some unknown source and had transfered the material from WPAFB to the Monsanto Mound Laboratory.

b. The allegations had been made by a J.C.Haines from the Columbus, Ohio area who had recently been arrested and sentenced for unregulated and unlicensed use of Americium 241. He had also been charged with lying to a Federal Officer. Per the NRC, the case had been turned over to the FBI for recovery of up to 100 curies of Americium 241 that it was believed Haines had obtained but never legally disposed. So far, the FBI could account for 20 curies but no more. The NRC's current investigation was aimed primarily at recovering or at least accounting for the missing Americium.

4. The NRC investigators reported they found nothing to indicate Mr James Lewis did accept anything from J.C. Haines. They understood that Mr Lewis knows Mr Haines and that Mr Lewis actually helped Mr Haines get licensed and helped him establish a safety program in the 1970 timeframe. They reported that they could find nothing to substantiate the allegation that the base had recovered 100 curies of Americium 241 and the the Monsanto Lab records also did not indicate any transfer of that quantity of Americium 241 from any source although they did have a permit that could accommodate that amount at the timeframe in question. The permit the base now has, issued for Dr John at AFIT, limits the amount of Americium 241 at WPAFB to < 1 curie, but at the time in question, the base had a permit for 5 curies.

5. In conclusion, the investigators outbriefed that they found nothing to substantiate the allegations. In fact, they found Mr Lewis' record keeping very thorough. They commented that it was rare for them to run across a radiation officer that had been in charge of the program as long as Mr Lewis and hence, could speak from personal experience regarding the installations program as much as 15 years ago. The investigators stated they would go back to the enforcement officials at the NRC and recommend no further action be taken in this matter. Further, they stated that the next thing we should expect would be a formal report back to the Base Commander indicating a Clean Bill Of Health for our program.

6. My next contact with the NRC came on 22 September 86. As I recall, I received a phone call from a Command Section secretary asking me to return a call that had been received from a Mr Axelson, Chicago Office, NRC. Mr Axelson had called regarding the investigation and had asked for Col Fox to call. I agreed to return the call for CC and recall stating that I surmised the call was to report our "Clean Bill Of Health" status. Much to my surprise, Mr Axelson quickly stated the purpose of the call was to request our conduct of a polygraph test on Mr James Lewis as the NRC had strong reason to suspect he was lying about the J.C. Haines affair. At first Mr Axelson refused to provide any rationale for our giving Mr Lewis such a test. I explained that based on the previous NRC outbrief, I was expecting all allegations to be deemed unfounded and the case closed. Mr Axelson then began questioning why I felt so strongly that Mr Lewis was truthful! I explained that I was not defending Mr Lewis.

Rather, lacking anything other than this phone call, I could not fathom the Installation Commander conducting a polygraph test on an individual that heretofore had no record of misconduct and for an allegation that we had still not been formally presented (or even informally presented in writing) by Mr Axelson's agency. At this point, Mr Axelson volunteered that the basis for his request was (A) the investigators' report stated that Mr Lewis had been very nervous and evasive during questioning and (B) the allegations made by Mr J.C. Haines were during intense FBI questioning and "plea bargaining" when he had nothing to lose by being honest and everything to lose if he lied. I then assured Mr Axelson that I would relay his request and its basis to Col Fox at the earliest time. I also indicated that I could not predict Col Fox's decision in this matter, but I would be highly surprised if he directed a polygraph test be conducted on the basis of this phone call. Mr Axelson understood and asked for a return call on the outcome of my discussion with Col Fox.

7. I then immediately called the Command Section and was informed by Ms Peggy Brohas that the Commander was in a closed door meeting with the OSI/SP/JA regarding status of investigations/legal actions on base. I asked Ms Brohas if she could please slip Col Fox a note that I might be permitted to interrupt therir meeting, with all players remaining, to discus my phone call with Mr Axelson which had "floored" me. She quickly came back to the phone and told me to come up to the Command Section immediately.

8. I met with Col Fox, Col Matlock (JA), Mr Carey (OSI), and a representative from SP, which I believe was either LtCol Kinderman or Mr Lyons, and reiterated the request of Mr Axelson. We briefly discussed the understanding I had from the outbriefing of the NRC investigators and what little I knew of the handling of the J.C. Haines case. Col Fox did not believe he had any reason as yet to conduct a polygraph test on Mr Lewis. Mr Carey indicated that if the FBI were involved and a WPAFB Civil Service employee were implicated, the FBI should be coordinating with the OSI for any followup. Mr Carey asked me to call his office and provide any of the available investigators with the name of the individual making the allegations or under investigation by the NRC (J.C.Haines) and his people would follow up with the FBI to see if further action such as polygraph testing was appropriate. I returned to the office, called the OSI offices as requested, and passed on all information I had in the matter, stating I was doing so at the request of Col Fox and Mr Carey. I did not record, or no longer have the name of the inspector I spoke with. I then called Mr Axelson, who was unavailable, but left word that the Installation Commander had directed the local OSI detachment to contact the FBI regarding this matter. Any further action taken toward Mr Lewis would then be completed upon the recommendation of the OSI to Col Fox.

9. On 26 September 86, I was summoned to the Command Section for the special meeting with CC regarding a possible radiation spill that had occurred. While I do not recall all the attendees, I do recall the following: Col Fox, Col Kollar, LtCol Swanson, Mr Vic Dunn, Mr Don Swan, and Ms Tracy Teets. The meeting, which was essentially a status briefing and a strategy session, was primarily handled by LtCol Swanson and Mr Vic Dunn. Mr Dunn explained the events from the day of the initial entry into 4060 by the radiation "inventory team" through the request to involve LtCol Swanson and Maj Ricci. I will not provide all the details of the meeting as they are well documented in other reports. However, during LtCol Swanson's status report, he mentioned that the equipment he had available to measure the radiation was picking up an Alpha source that could be either Americium or Plutonium (which has Americium as a by-product). I then recalled my conversations with Mr Axelson, but since Mr Vic Dunn (Mr James Lewis' supervisor) and Col Fox were also present and since the issue had been turned over to the OSI to handle, I did not ask any questions regarding the possible connection of these two situations.

10. On Monday, 29 September 86, Col Fox recalled the Diaster Response Force to Building 110, Area C for a status briefing by the task force that had been put together over the weekend. Chem Nuclear was present and discussed their proposed involvement. Mr James Lewis was also in attendance and a gave candid summary of events leading up to and after the spill. Col Scambilis was then placed in charge of the cleanup operation. This was my last formal involvement with the 4060 Project.

Thomas E. Shoup
Deputy, Base Civil Engineer

WP 20 NOV 87M

Mwemo For Record 20 November 87

Subj: Supplemental Information - Project 4060 and NRC Investigation

1. . In an effort to better understand the actions of people involved in the 4060 clean-up, the following additional information/observations are provided.

A. The initial investigation which outbriefed me on 20 August 86, was conducted in a very lighthearted and friendly manner. Messers Shear and Cannisno explained the allegations and their subsequent recommendation that all allegations be dropped in a very matter-of-fact manner. When I asked why they even came here and who made the allegations, they made light of the entire affair, saying that the allegations were made by a very "flakey guy from around Columbus, Ohio". Further, they stated that "If you want to read about the unbelievable things this guy did, they had a big article in the Columbus newspapers about him!" They further stated that J.C. Haynes had been convicted of lying to a Federal official so his credibility was very suspect.

B. Considering the above, when I briefly discussed the Outbrief with Col Fox who had not been able to attend the meeting, I too placed little significance upon the whole affair, fully expecting an excellent report on our radiological material management program. My conversation was very brief with Col Fox. I cannot recall giving him anymore detail than to expect a "clean bill of health". The entire matter was so insignificant to me, that I did not even prepare a formal Memo For Record of the meeting. The only reason I retained my notes of the outbriefing was that the investigators left me their business card and I have a habit of keeping cards in my desk. I paper clipped my notes to the business card and tossed them in my lap drawer.

C. It should be noted that Wright-Patterson receives numerous visits from the GAO, EPAs, AFAA, various IGs, GSA, and occasionally the OSI. This particular visit from the NRC was not at all out of the ordinary.

D. Regarding the phone call from Mr Axelson on 22 September 86 (4 days AFTER the spill had occurred), I was shocked at the lack of formality that was being displayed by this individual. Having not received anything in writing announcing the initial investigation...nothing in writing regarding the outcome of the investigation....and nothing but laudatory remarks from the investigators regarding our program and Mr Levis' records, here's an NRC Official that doesn't know me....I've never met nor heard of him....and he's taking the conduct of a polygraph test so lightly that he expects we'll conduct one on an untarnished (as far as we were aware) civilian employee. I recall telling Mr Axelson that "I don't know who you are or what your reasons are for wanting the test administered...as far as I know you may be a guy down the hall playing a bad joke!".

I reiterated that I could not speak for the Base Commander, but considering the personal assurances of the NRC investigators that the next thing we'd see was a "clean bill of health", I could not imagine Col Fox administering a polygraph test without written justification of which we had none. Mr Axelson then, reluctantly in his words, stated that the allegations were made to FBI investigators in such a way that they strongly believed them to be true (as I have stated in my 3 Nov 87 memo). I assumed that this NEW information had been obtained since the 20 August 86 outbrief. I stated that I would provide this information to Col Fox immediately.

E. Late in the afternoon of 22 September 86, after my phone call with Mr Axelson, I hurried to Col Fox's office to meet with him the JA,OSI, and SFs. I did not take any of my notes from the 20 Aug 86 outbrief nor had I prepared any new notes from the conversation with Mr Axelson. When I explained that the NRC now wanted a polygraph administered to Mr Lewis, I could not recall the name of the individual who had made the allegations (J.C. Haynes). I do not recall emphasizing that the material suspected to have been accepted by Mr Lewis was Americium 241. (Please note that by this time, the spill was 4-days old, but still not known to anyone in attendance.) The OSI needed J. C. Haynes name in order to followup with the FBI...if I had brought it with me, I could have given the information to Mr Carey. Instead, I called Mr Carey's office and provided the name and information to one of his investigators immediately upon my return to the office.

F. On 26 September 86, when called to the Command Section for an emergency meeting, I had no idea what the incident was about. When Lt Col Swanson mentioned the word Americium XYZ, I did not recognize the isotope number as the same mentioned by the NRC. I recall asking Lt Col Swanson if the spill could be Americium ABC to which he replied "No". While the coincidence of my hearing the same word "Americium" so recently bothered me, Lt Col Swanson continued to explain that the material could be a by-product of Plutonium...could be from other wastes such as smoke detectors...and it was also mentioned that a spill of Americium had occurred several years ago in a Base lab and the material may have come from that clean-up. He further stated, to my recollection, that the instruments he had available were not sufficient to accurately describe just what the material was or how much was spilled. Again, per my 3 Nov 87 memo, since the OSI was following up with the FBI....and since Mr Dunn, who was Mr Lewis' supervisor...and who had attended the NRC outbrief with me...and who was intimately familiar with the spill including the events of the last 8-days, was also hearing what I heard from Lt Col Swanson, I did not ask any questions about the possible connection of the two. I also doubt very much that Col Fox could make any connection, since the information I provided him from the outbrief was a short conversation indicating "all's well"...and the discussion in his office after Mr Axelson's call centered mostly upon the appropriateness of conducting a polygraph test of Mr Lewis, not details of the allegations since the notes from the 20 Aug 86 outbrief were still in my desk.

F. Lastly, the Disaster Response Force meeting in the Building 110, Area C readiness center, on 29 Sept 86, was attended by many people, including Mr Jim Lewis. Mr Lewis provided detailed commentary about what had happened on 18 Sep 86 and the following few days. He was very candid and forthright about errors he had made in "backing out" of the contaminated area. As a result of his apparent honesty regarding the spill and the fact that he too was being tested for possible contamination, my understanding that this spill was unrelated to the NRC allegations was further reinforced. I had no formal involvement with the cleanup after that meeting.

2. At no time did the NRC provide me, or to my knowledge any Wright-Patterson representative, any allegation in writing nor any substantiation with which to strongly suspect Mr Lewis was being untruthful. To the contrary, the investigators who were the only personal contacts the base had with the NRC prior to the spill, downplayed the allegations due to the apparent instability and untruthfulness of J. C. Haynes. Lastly, not until 4 days after the spill did the NRC, Mr Axelson, inform me that we had anything but a completely "clean bill of health" in this matter. Yet the allegations merited the same validity more than 30 days earlier when the investigators visited the base. Had the NRC openly and formally presented us with the evidence they had as early as 20 August 86, the entire incident could have been averted or its impact greatly reduced.

Thomas E. Shoup
Deputy, Base Civil Engineer

The attached chronology was prepared by A. Bert Davis, Regional Administrator, Region III. The chronology was not read at the hearing due to the lack of time. Several additions to the chronology which were made post-hearing are enclosed by brackets to reflect changes from the draft version provided to Congressional Staffers prior to the hearing.

REMARKS ON CHRONOLOGY
WRIGHT-PATTERSON AIR FORCE BASE AMERICIUM-241 SPILL
by
A. BERT DAVIS
REGIONAL ADMINISTRATOR, REGION III
DECEMBER 21, 1987

This is a chronology of NRC Region III activities related to an incident involving a spill of americium-241 at the Wright Patterson Air Force Base (WPAFB).

On April 22, 1986, while under oath at the U. S. Attorneys Office in Columbus, Ohio, Mr. J. C. Haynes, a former NRC licensee, informed Region III staff members, an FBI Agent, and an Assistant U. S. Attorney that sometime during the early 1970's he transferred an unknown, probably small amount of americium-241 as waste in two barrels to the Radiation Safety Officer (RSO) at WPAFB. Mr. Haynes stated that the waste was added to WPAFB waste and disposed of by WPAFB. The FBI Agent present at the meeting on that day requested the NRC not to pursue the allegations until after Mr. Haynes' sentencing so as to not jeopardize the case. Since the allegation was that the material had been disposed of and it consisted of an unknown, probably small amount of americium-241, there did not appear to be any immediate health and safety concern. Therefore, the FBI request was honored. Let me assure you, had we perceived that there was an imminent health and safety concern, we would have promptly proceeded with an inspection.

On August 20, 1986, Region III conducted an unannounced inspection at WPAFB to investigate the allegation. The inspection consisted of a review of receipt records, disposal records, and transfer records. The inspectors also reviewed

the WPAFB current inventory records of all material in storage. A review of those records did not reveal that the licensee ever received, transferred, or disposed of any americium-241 originating from Mr. Haynes. In addition, the RSO provided the NRC with a signed statement denying the allegation. The NRC representatives conducted a preliminary inspection exit meeting with the Base Commander's representatives, Mr. Shoup, Mr. Dunn, and Mr. Lewis.

From approximately August 22, 1986 to October 1, 1986, the NRC Region III staff continued to evaluate the allegations and possible approaches to resolve them. The staff believed at that time that the material had been transferred to WPAFB and had been disposed of by WPAFB. It was decided to request the Air Force to investigate the veracity of the RSO's statements. An NRC representative, Mr. Axelson, attempted on two occasions to contact Colonel Fox, the Base Commander. [On at least one of these occasions Mr.Shoup returned the call for Colonel Fox. Mr. Axelson] finally made contact [with Colonel Fox] on October 1, 1986. Mr. Axelson discussed the results of the inspection and requested that the Air Force Office of Special Investigations review the matter. The Base Commander agreed. Mr. Axelson's discussion included a briefing of the allegation, that the NRC's inspection had not substantiated the allegation, the conflict between the alleger's statements and RSO's statements and the credibility the allegation. During this conversation Colonel Fox made no mention of the September 18 americium incident. [Sometime between October 1 and the date the Air Force received the inspection report, Mr. Shoup called Mr. Axelson inquiring about the status of the report. Mr. Shoup made no mention of the americium incident.] The inspection report was issued to Colonel Fox on October 14, 1986.

On October 15, 1986, Region III received a telephone call from Captain Donovan, a member of the USAF radioisotope committee inquiring about suppliers of unsealed americium-241 in the Dayton Area. The NRC representative stated that such a listing could be derived and that we considered one major source of such material to be J. C. Haynes, a former NRC licensee. Captain Donovan stated that this source had already been discounted, although he gave no reason why. The NRC representative asked why the listing was needed. Captain Donovan replied that WPAFB had a small spill involving americium-241 and they were trying to determine the original source of the material. The NRC representative generated the list and called Captain Donovan with the information. He asked Captain Donovan whether this incident had been reported to the NRC. Donovan replied that the Air Force had not made the determination that this was a reportable incident.

The NRC representative discussed the above information with two first line supervisors. The supervisors took no further action. [Let me comment here that I don't consider this to be the standard of performance that I expect from my supervisors.]

[The Region III Public Affairs Office received an inquiry from a broadcast news organization in Dayton, Ohio (radio or television) 1-2 weeks before Region III learned of the WPAFB americium-241 spill on October 23, 1986. The organization was inquiring whether Region III had any information about a spill at WPAFB. The Public Affairs Office staff inquired of the technical managers in the Region III Nuclear Materials Safety and Safeguards Branch whether they had any information on such an incident and whether that is why

a Region III inspector was recently onsite. The technical managers responded that they were not aware of any spill and the inspector was onsite in August 1986 to followup on an allegation concerning J. C. Hayes waste being transferred to WPAFB. The Public Affairs Office staff then informed the news organization that Region III had no knowledge of any reports of a spill at WPAFB.]

On October 23, 1986, Region III was contacted by an FBI agent from the Columbus, Ohio area inquiring if Region III was aware of a major americium-241 incident at WPAFB. This information was communicated to NRC Headquarters and the Region IV staff. On October 24, 1986, Region III representatives were dispatched to the site to investigate the alleged incident. Information obtained on that date revealed that significant spills had occurred in Building 4060 on September 18, 1986 and October 6, 1986, involving americium-241. On October 24, 1986, Region III determined that the spills were limited to within the confines of Building 4060. It was also determined at that time that no individual had received an overexposure. On that date, the building already had been cordoned off and Chem-Nuclear (USAF contractor) and experts from the USAF Radiological Assistance Team were onsite.

On October 26, 1986, Oak Ridge Associated Universities (ORAU), an NRC contractor arrived at Region III's request to assess whether contamination had spread outside the building. Their evaluation was that no americium-241 in excess of the NRC guidelines had migrated beyond the building. In addition, ORAU assisted the NRC in approving the USAF decontamination plan for Building 4060 and assisted in evaluating the USAF's resources and manpower to effectively reduce the contamination within Building 4060 to within NRC established guidelines.

On October 27, 1986, Region III issued a letter to WPAFB confirming agreements reached by telephone on October 24, 1986. The agreements temporarily stopped decontamination activities, established fire protection and controlled entry for Building 4060 and removed the RSO from handling the incident. A Preliminary Notification (PN) and news release were issued that day and the State of Ohio Department of Radiological Health was notified.

From October 24, 1986, through November 1987, Region III performed periodic site inspections to follow decontamination and assure public health and safety was not jeopardized. These inspections also included a review of the results of radiological surveys conducted by the Air Force at the Boy Scout Camp on base, mud hole, and homes of individuals involved with the spill. All of the results revealed that contamination had not spread to any of these areas. An independent survey was also performed by the NRC in January 1987 at the Boy Scout Camp. The result of that survey was negative.

In December of 1986, the NRC was informed that one individual had received an exposure to americium-241 during the decontamination process on October 6, 1986. This individual continues to undergo tests to determine the extent of that exposure. The NRC expects from the Air Force a final evaluation on that exposure by December 1, 1987. [Subsequently, in November 1987 the NRC was informed of an exposure to a second individual which is also being evaluated by the Air Force.]

Based upon an NRC Office of Investigations briefing, Region III issued a Confirmatory Action Letter to WPAFB on February 5, 1987, confirming the removal of three individuals from the use or supervision of any NRC licensed material.

This month, the USAF completed the decontamination effort which led to the dismantling of Building 4060. The final determination of activity found at WPAFB was approximately 2 curies of americium-241. This amount is in excess of the amount of radioactive material which WPAFB was authorized to possess under its NRC license. Chem-Nuclear, the USAF contractor for the decontamination and repacking of materials, is still onsite packaging other Air Force waste not associated with the americium-241 which caused the initial spill. Although only one barrel of waste from Mr. Haynes was found thus far at WPAFB, the NRC believes that the other barrel had been disposed of as WPAFB generated waste as was alleged.

To date, the bulk of americium-241 found at WPAFB and the remainder of Building 4060 are being controlled by the base and are being held in a high security area. The high activity material will be going to a Department of Energy facility for storage since it is in excess of the concentrations allowed for burial at a commercial burial site. The other lower level waste is currently awaiting transport to a commercial burial site for disposal.

The NRC is currently awaiting the final results of surveys performed by Chem-Nuclear and the Air Force of the areas remaining after the dismantling of Building 4060. Upon receipt and review of the surveys, the NRC will determine whether the area can be released for unrestricted use. Preliminary NRC surveys conducted at the site have revealed that the area can be released for unrestricted use.

This concludes my statement of the chronology. I will be pleased to answer any questions which you may have.

DRAFT

Remarks on Chronology

Wright Patterson Air Force Base (WPAFB)

Americium-241 Incident

Regarding the Region III August 20, 1986 Inspection

by

William L. Axelson, Chief
Nuclear Materials Safety and Safeguards1
NRC, Region III

This is a chronology of my telephone conversations with Colonel Fox and Mr. Shoup.

On October 1, 1986, I telephoned Colonel Fox, Base Commander, Wright Patterson Air Force Base (WPAFB), to discuss the results of the August 20, 1986 special inspection. I recall we spoke for about ten minutes. The purpose of the call was to formally "exit" with a senior level air force official and turn over the allegation to him for further review. During that telephone conversation, I recall discussing the following:

1 Presently Chief of the Technical Support Staff, Division of Reactor Projects, Region III.

DRAFT

- I explained to Colonel Fox who I was and the purpose of the telephone call.

- I explained to Colonel Fox the allegation Region III received from John C. Haynes and the results of our inspection. That is, Haynes had transferred two drums of Am-241 radioactive waste to Jim Lewis, Radiation Safety Officer (RSO) at WPAFB sometime in the early 1974 time frame.

- I told Colonel Fox that my inspectors were told by Lewis that he did not receive any waste from Haynes.

- I told Colonel Fox that my inspectors felt uncomfortable with Lewis' statement, and we felt we were not getting the whole story.

- I explained to Colonel Fox who Haynes was and the problems we had with Haynes in the past; that he had lied to us in the past. I further explained to Colonel Fox that we felt there was merit to this Haynes allegation due to the circumstances of how we received it from Haynes, and I went into those circumstances.

- I told Colonel Fox that there was not much more we could do and suggested he pursue the matter further with the Office of Special Investigations (OSI). Colonel Fox said he would request the Air Force OSI to review the matter.

Colonel Fox made no mention of the spill to me.

Sometime in early to mid-September 1986, I telephoned Shoup regarding the NRC Region III special inspection of the Haynes allegation. I do not remember the specific date, and I do not recall the specifics of that telephone call except that I told Shoup that the NRC was not finished with the inspection, and we felt uncomfortable regarding what Lewis had told our inspectors.

Sometime after October 1, 1986 and before the Air Force received the Region III special inspection report of the Haynes allegation dated October 14, 1986, Mr. Shoup called me inquiring about the NRC special inspection report. I told Shoup it was completed and should be in the mail. Mr. Shoup made no mention of the spill at WPAFB. This telephone call was very short.

NOV 13 1986

MEMORANDUM FOR: W. L. Axelson, Chief, Nuclear Materials Safety and Safeguards Branch

FROM: William J. Adam, Ph.D., Senior Health Physicist/Licensing

SUBJECT: REPORT OF AMERICIUM-241 CONTAMINATION AT WRIGHT-PATTERSON AIR FORCE BASE

During the week of October 15, 1986, I received a telephone call from a Captain Donovan of the U.S. Air Force (telephone number 512/536-3331) during which he requested a listing of suppliers of americium-241 in unsealed form in the Dayton area. I stated that such a listing could be derived and that we considered one major "source" of such material to be J. C. Haynes, a former NRC licensee. Captain Donovan stated that this source had already been discounted, although he gave no reason as to why.

I asked Captain Donovan why such a listing was needed. He stated that Wright-Patterson Air Force Base had a "small spill" involving americium-241 and that they were trying to determine the original source of the material.

I generated the listing of sources of americium-241 in unsealed form (Attachment A) and called Captain Donovan to give him this information. At the conclusion of our conversation, I asked Captain Donovan whether this incident had been reported to the NRC. He stated that the licensee had not made the determination that this was a "reportable incident." He did not offer a rationale for this decision. Captain Donovan asked if there was a way to generate a listing of licensees who may have been suppliers of americium-241 in the past but are no longer licensees. I informed him that our database only extends back five years and would not contain data on any licenses retired prior to that timeframe.

At the conclusion of this conversation, I informed Darrel Wiedeman, Chief, Nuclear Materials Safety Section 1 of the information stated above, including Captain Donovan's name and telephone number.

William J. Adam, Ph.D.
Senior Health Physicist/Licensing

Attachment: As stated

RIII
WJA
Adam/jj
11/13/86

3-86-0?

EXHIBIT 47
PAGE 1 OF 1 PAGE(S)

February 19, 1987
EN 87-09

OFFICE OF INSPECTION AND ENFORCEMENT
NOTIFICATION OF SIGNIFICANT ENFORCEMENT ACTION

Licensee: Department of the Air Force 30-28641
License No. 42-23539-01AF

Subject: DEMAND FOR INFORMATION

This is to inform the Commission that a Demand For Information is being issued today to the United States Air Force (USAF). This action is based on an americium-241 contamination incident inside a radioactive waste storage building at Wright Patterson Air Force Base (WPAFB). This incident resulted in the activation of the Air Force Radiological Assistance Team and the assistance of Chem-Nuclear Services, Inc. to decontaminate and repack the waste at a cost of approximately $500,000 to date. The USAF will have to decide whether further decontamination attempts should be undertaken or whether the waste storage building should be dismantled and disposed of as radioactive waste. Notwithstanding the significance of this event, no notification was provided to the NRC as required by 10 CFR 20.403(b)(3) and (b)(4). In addition, it has been determined that as of September 1986, WPAFB possessed more than 1 curie of americium-241 in an unsealed form. During the period 1980 to October 1986, WPAFB was authorized only to possess americium-241 in sealed forms.

The above raises a question as to whether the USAF will provide complete, accurate, and timely reports to the NRC as required. Accordingly, to determine whether the USAF license should be modified or other enforcement action taken, the USAF is required to submit within 30 days to the Director, Office of Inspection and Enforcement, the following information in writing and under oath or affirmation. Actions taken or to be taken to assure (1) that the Commission will receive complete, accurate, and timely information from the USAF (2) that the USAF individuals responsible for reporting will be fully aware of the Commission's reporting requirements and that all such requirements will be fully met, and (3) that activities under the licensee will comply with Commission requirements, including USAF permit conditions for authorized quantities and form of material.

A news release has been prepared and will be issued after the licensee receives the Demand for Information.

Contact: E. Flack, IE 29823 A. Beach, IE 24909

Distribution:

H Street 1:45	MNBB 1:45	Phillips 1:46	EW ____	Willste 1:50
Chairman Zech	EDO	NRR	IE	NMSS
Comm. Roberts	DED/ROGR		OIA	
Comm. Asselstine	PA		OI	
Comm. Bernthal	OGC		AEOD	
Comm. Carr	RM			
ACRS				
SECY	Air Rights 1:55	Regional Offices	MAIL	
CA	SP	RI 1:47 RIV 1:47	ADM: Doc. Mat. Br.	
OGC		RII 1:47 RV 1:47	PDR	
		RIII 1:47	RES	

PRELIMINARY INFORMATION - NOT FOR PUBLIC DISCLOSURE UNTIL PUBLICLY ANNOUNCED.

8702250112 870219
PDR I&E
EN-87-009 PDR

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

FEB 19 1987

Docket No. 030-28641
License No. 42-23539-01AF
EA 87-25

Col. Bryant D. Mauk
Chairman, USAF Radioisotope Committee
HQUSAF/SGP
Bolling Air Force Base
Washington, D.C. 20332

Dear Col. Mauk:

As you are aware a significant incident involving americium-241 occurred on September 18, 1986 at the Wright Patterson Air Force Base. You are required to respond to the attached Demand for Information in accordance with the instructions provided therein. This information is necessary to determine whether the license should be modified or other enforcement action taken. Once we have received your response, consideration will be given to arranging a meeting with the Air Force to discuss this matter further.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter will be placed in the NRC Public Document Room.

Sincerely,

James M. Taylor, Director
Office of Inspection and Enforcement

Enclosure:
Demand for Information

cc: Surgeon General of the USAF
Lt. Col. David Wood, Brooks Air Force Base

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	Docket No. 030-28641
	)	License No. 42-23539-01AF
DEPARTMENT OF THE AIR FORCE	)	EA 87-25

DEMAND FOR INFORMATION

I.

The United States Air Force (USAF) (the licensee) holds License No. 42-23539-01AF (the license), which grants the USAF the authority to issue Permits to Air Force locations where the NRC has regulatory jurisdiction. This license was issued by the Nuclear Regulatory Commission on June 26, 1985. The management and control of this license is the responsibility of the USAF Radioisotope Committee (the Committee). The Executive Secretary of the Committee is located at Brooks Air Force Base near San Antonio, Texas. Wright Patterson Air Force Base (WPAFB) near Dayton, Ohio is the holder of USAF Radioactive Material Permit No. 34-00472-02 AFP issued by the Committee on December 18, 1985 as a conversion of a previously issued NRC specific license.

II.

On September 18, 1986 an incident occurred that resulted in significant americium-241 contamination inside a radioactive waste storage building at WPAFB. The incident resulted in the activation of the Air Force Radiological Assistance Team (AFRAT) and the assistance of Chem-Nuclear Services, Inc. to decontaminate and repack the waste at a cost of approximately $500,000 to

date. The USAF will have to decide whether further decontamination attempts should be undertaken or whether the waste storage building should be dismantled and disposed of as radioactive waste.

Notwithstanding the significance of this event, no notification was provided to the NRC as required by 10 C.F.R. § 20.403(b) (3) and (b)(4). These provisions require a licensee to contact the NRC within 24 hours of discovery of an event involving licensed material possessed by the licensee that may have caused or threatens to cause a loss of one day or more of the operation of any facility affected, or damage to property in excess of $2000.00. On September 26, 1986, the NRC first became aware of the event when a member of the USAF Radioisotope Committee informed the NRC that a "minor" spill had occurred at WPAFB. The NRC was not informed that the incident involved americium-241 in unsealed form which WPAFB was not authorized to possess. Although the USAF had ample information in terms of the regulatory requirements for reporting this incident at the time to know that the characterization was inaccurate and incomplete, USAF personnel continued to characterize the contamination as "minor" to NRC officials until late October. On November 7, 1986, the USAF made official written notification of the incident to the NRC.

A confirmatory action letter was issued on February 5, 1987, confirming removal by the Department of the Air Force of three individuals from the performance or supervision of NRC-licensed activities, based on their involvement in the incident.

In addition, it has been determined that as of September 1986, WPAFB possessed more than 1 curie of americium-241 in an unsealed form. During

the period 1980 to October 1986, WPAFB was authorized only to possess americium-241 in sealed forms. This situation reflects a lack of management control and supervision over licensed activities.

III.

On the basis of the above, it appears that this licensee has demonstrated a lack of understanding of NRC regulations in dealing with the NRC; this raises a question as to whether the licensee will provide complete, accurate, and timely reports to the NRC as required. Furthermore, the licensee has demonstrated a lack of control over the conduct of licensed activities in that WPAFB was not in compliance with the quantity and form limitation authorized by its permit. As a result of these failures, the Commission's ability to carry out its statutory obligations to assure adequate protection of the public health and safety was impaired. Such conduct is unacceptable by any licensee, but is of particular concern in light of the importance of USAF licensed activities to national defense and security. The NRC depended on the USAF to exercise strong management control under its license and to fully and accurately share information on permitted activities.

The NRC expects the USAF to provide an opportunity for NRC to monitor activities that have the potential to affect the public health and safety and to provide NRC with confidence that the USAF is properly carrying out licensed activities. Accordingly, further information is needed to determine whether the Commission should continue to have reasonable assurance that the licensee will conduct its activities in accordance with the Commission's requirements.

IV.

To determine whether the license should be modified or other enforcement action taken, the Department of the Air Force is hereby required to submit within 30 days to the Director, Office of Inspection and Enforcement, the following information in writing and under oath or affirmation pursuant to Section 182 of the Atomic Energy Act of 1954, as amended:

Actions taken or to be taken to assure (1) that the Commission will receive complete, accurate, and timely information from the Committee, (2) that the individuals responsible for reporting will be fully aware of the Commission's reporting requirements and that all such requirements will be fully met, and (3) that activities under the licensee will comply with Commission requirements, including USAF permit conditions for authorized quantities and form of material.

V.

Following receipt of the information required above, the NRC will determine whether a meeting with the Department of the Air Force is necessary to determine whether further action, if any, will be necessary.

FOR THE NUCLEAR REGULATORY COMMISSION

James Taylor, Director
Office of Inspection and Enforcement

Dated at Bethesda, Maryland
this 9th day of February, 1987.

code of federal regulations

Energy

10

PARTS 0 TO 199

Revised as of January 1, 1987

CONTAINING
A CODIFICATION OF DOCUMENTS
OF GENERAL APPLICABILITY
AND FUTURE EFFECT

AS OF January 1, 1987

With Ancillaries

Published by
the Office of the Federal Register
National Archives and Records
Administration

as a Special Edition of
the Federal Register

83-464 0 - 88 - 9

suits of surveys used to evaluate the release of radioactive effluents to the environment.

(3) Records of disposal of licensed materials made pursuant to §§ 20.302, 20.303, removed § 20.304,[3] and Part 61 of this chapter are to be maintained until the Commission authorizes their disposition.

(4) Records which must be maintained pursuant to this part may be the original or a reproduced copy or microform if such reproduced copy or microform is duly authenticated by authorized personnel and the microform is capable of producing a clear and legible copy after storage for the period specified by Commission regulations.

(5) If there is a conflict between the Commission's regulations in this part, license condition, or technical specification, or other written Commission approval or authorization pertaining to the retention period for the same type of record, the retention period specified in the regulations in this part for such records shall apply unless the Commission pursuant to § 20.501, has granted a specific exemption from the record retention requirements specified in the regulations in this part.

[25 FR 10914, Nov. 17, 1960, as amended at 41 FR 16301, May 3, 1976; 47 FR 57480, Dec. 27, 1982]

§ 20.402 Reports of theft or loss of licensed material.

(a)(1) Each licensee shall report to the Commission, by telephone, immediately after it determines that a loss or theft of licensed material has occurred in such quantities and under such circumstances that it appears to the licensee that a substantial hazard may result to persons in unrestricted areas.

(2) Reports must be made as follows:

(i) Licensees having an installed Emergency Notification System shall make the reports to the NRC Operations Center in accordance with § 50.72 of this chapter.

(ii) All other licensees shall make reports to the Administrator of the appropriate NRC Regional Office listed in Appendix D of this part.

(b) Each licensee who makes a report under paragraph (a) of this section shall, within 30 days after learning of the loss or theft, make a report in writing to the U.S. Nuclear Regulatory Commission, Document Control Desk, Washington, D.C. 20555, with a copy to the appropriate NRC Regional Office listed in Appendix D of this part. The report shall include the following information:

(1) A description of the licensed material involved, including kind, quantity, chemical, and physical form;

(2) A description of the circumstances under which the loss or theft occurred;

(3) A statement of disposition or probable disposition of the licensed material involved;

(4) Radiation exposures to individuals, circumstances under which the exposures occurred, and the extent of possible hazard to persons in unrestricted areas;

(5) Actions which have been taken, or will be taken, to recover the material; and

(6) Procedures or measures which have been or will be adopted to prevent a recurrence of the loss or theft of licensed material.

(c) Subsequent to filing the written report the licensee shall also report any substantive additional information on the loss or theft which becomes available to the licensee, within 30 days after he learns of such information.

(d) Any report filed with the Commission pursuant to this section shall be so prepared that names of individuals who may have received exposure to radiation are stated in a separate part of the report.

(e) For holders of an operating license for a nuclear power plant, the events included in paragraph (b) of this section must be reported in accordance with the procedures described in § 50.73 (b), (c), (d), (e), and (g) of this chapter and must include the information required in paragraph (b) of this section. Events reported in accordance with § 50.73 of this chapter need not be reported by a duplicate report under paragraph (b) of this section.

[34 FR 7560, May 8, 1969, as amended at 38 FR 1271, Jan. 11, 1973; 48 FR 33850, July 26, 1983]

§ 20.403 Notifications of incidents.

(a) *Immediate notification.* Each licensee shall immediately report any events involving byproduct, source, or special nuclear material possessed by the licensee that may have caused or threatens to cause:

(1) Exposure of the whole body of any individual to 25 rems or more of radiation; exposure of the skin of the whole body of any individual of 150 rems or more of radiation; or exposure of the feet, ankles, hands or forearms of any individual to 375 rems or more of radiation; or

(2) The release of radioactive material in concentrations which, if averaged over a period of 24 hours, would exceed 5,000 times the limits specified for such materials in Appendix B, Table II of this part; or

(3) A loss of one working week or more of the operation of any facilities affected; or

(4) Damage to property in excess of $200,000.

(b) *Twenty-four hour notification.* Each licensee shall within 24 hours of discovery of the event, report any event involving licensed material possessed by the licensee that may have caused or threatens to cause:

(1) Exposure of the whole body of any individual to 5 rems or more of radiation; exposure of the skin of the whole body of any individual to 30 rems or more of radiation; or exposure of the feet, ankles, hands, or forearms to 75 rems or more of radiation; or

(2) The release of radioactive material in concentrations which, if averaged over a period of 24 hours, would exceed 500 times the limits specified for such materials in Appendix B, Table II of this part; or

(3) A loss of one day or more of the operation of any facilities affected; or

(4) Damage to property in excess of $2,000.

(c) Any report filed with the Commission pursuant to this section shall be prepared so that names of individuals who have received exposure to radiation will be stated in a separate part of the report.

(d) Reports made by licensees in response to the requirements of this section must be made as follows:

(1) Licensees that have an installed Emergency Notification System shall make the reports required by paragraphs (a) and (b) of this section to the NRC Operations Center in accordance with § 50.72 of this chapter.

(2) All other licensees shall make the reports required by paragraphs (a) and (b) of this section by telephone and by telegram, mailgram, or facsimile to the Administrator of the appropriate NRC Regional Office listed in Appendix D of this part.

[27 FR 6068, June 22, 1962, as amended at 30 FR 6822, July 2, 1965; 43 FR 43065, Sept. 1, 1977; 43 FR 2719, Jan. 19, 1978; 48 FR 33850, July 26, 1983]

§ 20.404 [Reserved]

§ 20.405 Reports of overexposures and excessive levels and concentrations.

(a)(1) In addition to any notification required by § 20.403 of this part, each licensee shall make a report in writing concerning any one of the following types of incidents within 30 days of its occurrence:

(i) Each exposure of an individual to radiation in excess of the applicable limits in §§ 20.101 or 20.104(a) of this part, or the license;

(ii) Each exposure of an individual to radioactive material in excess of the applicable limits in §§ 20.103(a)(1), 20.103(a)(2), or § 20.104(b) of this part, or in the license;

(iii) Levels of radiation or concentrations of radioactive material in a restricted area in excess of any other applicable limit in the license;

(iv) Any incident for which notification is required by § 20.403 of this part; or

(v) Levels of radiation or concentrations of radioactive material (whether or not involving excessive exposure of any individual) in an unrestricted area in excess of ten times any applicable limit set forth in this part or in the license.

(2) Each report required under paragraph (a)(1) of this section must describe the extent of exposure of individuals to radiation or to radioactive material, including:

(i) Estimates of each individual's exposure as required by paragraph (b) of this section;

(ii) Levels of radiation and concentrations of radioactive material involved;

(iii) The cause of the exposure, levels or concentrations; and

(iv) Corrective steps taken or planned to prevent a recurrence.

(b) Any report filed with the Commission pursuant to paragraph (a) of this section shall include for each individual exposed the name, social security number, and date of birth, and an estimate of the individual's exposure. The report shall be prepared so that this information is stated in a separate part of the report.

(c)(1) In addition to any notification required by § 20.403 of this part, each licensee shall make a report in writing of levels of radiation or releases of radioactive material in excess of limits specified by 40 CFR Part 190, "Environmental Radiation Protection Standards for Nuclear Power Operations," or in excess of license conditions related to compliance with 40 CFR Part 190.

(2) Each report submitted under paragraph (c)(1) of this section must describe:

(i) The extent of exposure of individuals to radiation or to radioactive material;

(ii) Levels of radiation and concentrations of radioactive material involved;

(iii) The cause of the exposure, levels, or concentrations; and

(iv) Corrective steps taken or planned to assure against a recurrence, including the schedule for achieving conformance with 40 CFR Part 190 and with associated license conditions.

(d) For holders of an operating license for a nuclear power plant, the incidents included in paragraphs (a) or (c) of this section must be reported in accordance with the procedures described in § 50.73 (b), (c), (d), (e), and (g) of this chapter and must also include the information required by paragraphs (a) and (c) of this section. Incidents reported in accordance with § 50.73 of this chapter need not be reported by a duplicate report under paragraphs (a) or (c) of this section.

(e) All other licensees who make reports under paragraphs (a) or (c) of this section shall, within 30 days after learning of the overexposure or excessive level or concentration, make a report in writing to the U.S. Nuclear Regulatory Commission, Document Control Desk, Washington, D.C. 20555, with a copy to the appropriate NRC Regional Office listed in Appendix D of this part.

[25 FR 10914, Nov. 17, 1960, as amended at 35 FR 15066, Sept. 29, 1970; 46 FR 18526, Mar. 25, 1981; 48 FR 33460, July 26, 1983]

§ 20.406 [Reserved]

§ 20.407 Personnel monitoring reports.

Each person described in § 20.408 of this part shall, within the first quarter of each calendar year, submit to the Director, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, the reports specified in paragraphs (a) and (b) of this section, covering the preceding calendar year.[1]

(a) A report of either (1) the total number of individuals for whom personnel monitoring was required under § 20.202(a) or § 34.33(a) of this chapter during the calendar year; or (2) the total number of individuals for whom personnel monitoring was provided during the calendar year: *Provided, however,* That such total includes at least the number of individuals required to be reported under paragraph (a)(1) of this section. The report shall indicate whether it is submitted in accordance with paragraph (a)(1) or (a)(2) of this section. If personnel monitoring was not required to be provided to any individual by the licensee under §§ 20.202(a) or 34.33(a) of this chapter during the calendar year, the licensee shall submit a negative report indicating that such personnel monitoring was not required.

[1] A licensee whose license expires or terminates prior to, or on the last day of the calendar year, shall submit reports at the expiration or termination of the license, covering that part of the year during which the license was in effect.

(b) A statistical summary report of the personnel monitoring information recorded by the licensee for individuals for whom personnel monitoring was either required or provided, as described in paragraph (a) of this section, indicating the number of individuals whose total whole body exposure recorded during the previous calendar year was in each of the following estimated exposure ranges:

Estimated whole body exposure range (rems)[1]	Number of individuals in each range
No measurable exposure	
Measurable exposure less than 0.1	
0.1 to 0.25	
0.25 to 0.5	
0.5 to 0.75	
0.75 to 1	
1 to 2	
2 to 3	
3 to 4	
4 to 5	
5 to 6	
6 to 7	
7 to 8	
8 to 9	
9 to 10	
10 to 11	
11 to 12	
12 +	

[1] Individual values exactly equal to the values separating exposure ranges shall be reported in the higher range.

The low exposure range data are required in order to obtain better information about the exposures actually recorded. This section does not require improved measurements.

[43 FR 44829, Sept. 29, 1978, as amended at 49 FR 24513, June 14, 1984]

§ 20.408 Reports of personnel monitoring on termination of employment or work.

(a) This section applies to each person licensed by the Commission to:

(1) Operate a nuclear reactor designed to produce electrical or heat energy pursuant to § 50.21(b) or § 50.22 of this chapter or a testing facility as defined in § 50.2 of this chapter.

(2) Possess or use byproduct material for purposes of radiography pursuant to Parts 30 and 34 of this chapter;

(3) Possess or use at any one time, for purposes of fuel processing, fabricating, or reprocessing, special nuclear material in a quantity exceeding 5,000 grams of contained uranium-235, uranium-233, or plutonium or any combination thereof pursuant to Part 70 of this chapter;

(4) Possess high-level radioactive waste at a geologic repository operations area pursuant to Part 60 of this chapter; or

(5) Possess spent fuel in an independent spent fuel storage installation (ISFSI) pursuant to Part 72 of this chapter; or

(6) Possess or use at any one time, for processing or manufacturing for distribution pursuant to Parts 30, 32, or 33 of this Chapter, byproduct material in quantities exceeding any one of the following quantities:

Radionuclide[1]	Quantity in curies
Cesium 137	1
Cobalt 60	1
Gold 198	100
Iodine 131	1
Iridium 192	10
Krypton 85	1,000
Promethium 147	10
Technetium 99m	1,000

[1] The Commission may require, as a license condition or by rule, regulation or order pursuant to § 20.502, reports from licensees who are licensed to use radionuclides not on the list, in quantities sufficient to cause comparable radiation levels.

(7) Receive radioactive waste from other persons for disposal under Part 61 of this chapter.

(b) When an individual terminates employment with a licensee described in paragraph (a) of this section, or an individual assigned to work in such a licensee's facility, but not employed by the licensee, completes the work assignment in the licensee's facility, the licensee shall furnish to the Director, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, a report of the individual's exposures to radiation and radioactive material, incurred during the period of employment or work assignment in the licensee's facility, containing information recorded by the licensee pursuant to §§ 20.401(a) and 20.108. Such report shall be furnished within 30 days after the exposure of the individual has been determined by the licensee or 90 days after the date of termination of

1/29/88 - D.C. → cc: EDO Taylor NMSS R-4+3 R/A 1-29-88

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF INVESTIGATIONS FIELD OFFICE, REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

January 27, 1988

Dir:
DD:
Policy:
Cons:
OI: R1
OI: R2
OI: R3
OI: R4
OI: HQ
FOIA:
PDR:
Copies to:

MEMORANDUM FOR: Ben B. Hayes, Director
Office of Investigations

THRU: Roger A. Fortuna, Deputy Director
Office of Investigations

FROM: Eugene T. Pawlik, Director
Office of Investigations Field Office, Region III

SUBJECT: INTERVIEWS OF REGION IV PERSONNEL RE: WRIGHT-PATTERSON AIR FORCE BASE (3-86-012)

On December 18, 1987, Assistant U.S. Attorney Christopher Barnes, accompanied by OI:RIII Senior Investigator Harold G. Walker and U.S. Air Force (USAF) Office of Special Investigations (OSI) Investigator David C. Lannak, went to NRC:RIV in Arlington, Texas, to interview some of the NRC:RIV staff relative to the Wright-Patterson Air Force Base (WPAFB) investigation. The two principal NRC:RIV staff members interviewed were Jerry Everett, NRC:RIV Nuclear Materials Safety Section Chief, and Charles Cain, NRC:RIV Radiation Specialist. Prior to the interviews, Barnes had indicated to Walker that his purpose for conducting the interviews of the two staff members was merely to further develop and clarify some of the information on reportability contained in earlier sworn testimony provided in January 1987 by Cain and Everett during the OI investigation of the WPAFB Americium-241 (Am-241) spill.

Rather than ending up, however, with a clarification of the reportability issue, Cain and Everett each provided information to Barnes that, in his opinion, may have fatally effected any possible further criminal investigation of certain USAF personnel at Brooks Air Force Base (AFB), and significantly impacted on the chances for a successful prosecution of certain personnel involved in the Am-241 spill at WPAFB.

During Everett's December 18, 1987, interview (Attachment 1), he stated that the information received by him on September 26, 1986, from Dunlap was not a reportable incident because none of the criteria of 10 CFR 20.403 was apparently exceeded. The NRC regulation, according to Everett, is vague, ambiguous, and leaves room for interpretation. Everett, when questioned as to what constitutes a "release," further went on to advise the U.S. Attorney that a "release," in his (Everett's) opinion, was "something beyond the licensee's control," and that based upon his professional background and experience, the event (at WPAFB) constituted a "spill," not a "release," therefore invalidating that portion of 10 CFR 20.403 that addresses a "release," and one of the requirements that triggers reportability. Everett went on to state that it was marginal whether

the first spill of Am-241 required reporting under 10 CFR 20.403, and that it was "open to interpretation." Everett concluded his interview with the U.S. Attorney by stating that 10 CFR 20.403/405 was open to interpretation and that the NRC had not communicated to the USAF a full interpretation of how the regulations were to be implemented.

As damaging as Everett's testimony was to the Department of Justice (DOJ) case against the USAF personnel involved in the event, the interview of Cain (Attachment 2) was even worse. Early on in his interview, he advised everyone present that his recall was based solely on his November 3, 1986, memorandum (Attachment 3), and that he had no additional recall. Cain went on to say that he also had neither contemporaneous notes nor a telephone log to refresh his memory.

During his interview, Cain stated he did not regard the USAF as a typical licensee. Rather, he regarded the USAF as an "ally" treated as co-equals, and looked at by him as if they were an "agreement state."

Cain went on to state that 10 CFR 20.403(b)(3) was open to interpretation. When asked about the figure of a 1,000,000 counts per minute (CPM) contamination arrived at by the NRC as a result of the second spill, Cain stated that "it is not unreasonable that they (USAF) would have arrived at the conclusion that this (second spill) was not reportable," and that "1,000,000 CPM may not be reportable, it could be characterized as minor."

Cain further stated that the first spill (September 18, 1986) was "open to interpretation" and "not reportable," and in his mind, the USAF was not negligent in waiting to report. In regard to the second spill (October 6, 1986), Cain stated, "yes, the agency (NRC) should have been told" about the contamination, but it was open to interpretation whether they (USAF) were legally required to report it under 10 CFR 20.403 and 20.405. Cain then concluded this interview by stating that all of 10 CFR 20.403 is open to interpretation and if he were placed on the stand under oath, he would respond in that manner. He closed by saying that he had registered his personal views with the NRC that 10 CFR 20.403 is ambiguous and open to interpretation.

The contents of this testimony provided to the U.S. Attorney raises several disturbing issues, which I believe need to be brought to your attention.

First and foremost is my concern over the opinions expressed by both Everett and Cain that 10 CFR 20.403 is ambiguous and open to interpretation. As noted earlier, both Everett and Cain were interviewed by NRC:OI in January 1987 (Attachments 4 and 5), a few months after the WPAFB event. I have carefully reviewed their sworn testimony and nowhere do I find views expressed about any ambiguity in the regulation. In mid-November, el[illegible] months later, Everett and Cain were present and involved in at least two [illegible]or NRC senior staff meetings held in Dayton, Ohio, just prior to the Senators Glenn and Metzenbaum hearing. Again, I do not recall them volunteering any information

about their views on the reportability and ambiguity aspects of 10 CFR 20.403. I find it particularly disturbing that the views of Everett and Cain took over twelve months to surface, especially in light of the impact their views now have at the eleventh hour on the essence of the OI case.

I am also disturbed by Cain's statement that he has registered his personal views with the NRC that 10 CFR 20.403 is ambiguous and open to interpretation. Neither I nor anyone in NRC:RIII is aware of this information, and certainly if this was done, we (OI) should have been advised of his views as soon as they were made known.

I must also acknowledge that I am somewhat perplexed about the differences between the NRC:RIV and NRC:RIII interpretations of 10 CFR 20.403. NRC:RIII Inspection Report No. 030-28641/86004(DRSS) was formally issued on April 28, 1987, and cited the USAF for failure to comply with the regulations in question. I question in my own mind how these two staffs can be so far apart on the interpretation of this commonly used regulation. I also question whether or not this perceived "ambiguity" in the regulation is widespread among other NRC staff in other regions, and wonder what impact that may be having today on the USAF, the recently issued U.S. Navy broad scope license, and licensees in general, vis-a-vis reportable events.

In sum, I think it is a fair assessment to say that the two recent interviews of Everett and Cain have at this late date placed most, if not all, of the WPAFB DOJ investigation in jeopardy. I am also of the opinion that this never should have occurred the way it did, and expect the resultant fallout on this matter will embarrass the NRC in the eyes of both DOJ and certain members of Congress. I feel that somehow steps must be taken to insure that such a scenario as this does not ever happen again with another OI case.

Attachments:
1. Report of Interview with Jerry Everett on 12/18/87
2. Report of Interview with Charles Cain on 12/16/87
3. Memo to File from C. L. Cain dtd 11/03/86
4. Sworn Testimony of Jerry Everett dtd 01/22/87
5. Sworn Testimony of Charles Cain dtd 01/22/87

REPORT OF INTERVIEW
WITH
JERRY EVERETT

On December 18, 1987, at approximately 10:00 a.m, Jerry EVERETT, NRC Region IV (RIV) Nuclear Materials Safety Section Chief, was interviewed at the NRC:RIV Office, 611 Ryan Plaza, Arlington, Texas, by: Christopher BARNES, Assistant U.S. Attorney, Southern Judicial District of Ohio; David C. LANNAK, Special Agent, U.S. Air Force (USAF) Office of Special Investigations; and Harold G. Walker, Senior Investigator, NRC Office of Investigations (OI) Field Office, Region III (RIII).

EVERETT was being questioned regarding his recollection of conversations and events between members of the USAF Radioisotope Committee located at Brooks Air Force Base (AFB), San Antonio, Texas, and himself during the time frame September 26, through October 1986. EVERETT, on January 22, 1987, was interviewed under oath by NRC:OI Investigator Walker (Ref: OI Case No. 3-86-012). The questions were directly related to the Americium-241 (Am-241) spills at Wright-Patterson Air Force Base (WPAFB), Dayton, Ohio, which occurred on September 18 and October 6, 1986.

EVERETT provided the following background information regarding his experience and education. EVERETT stated that he has 20 years Federal service as a health physicist, a Master of Science degree in Chemistry, and is a member and current Chairman of the American Board of Health Physics.

EVERETT described his position as of September/October 1986 as the supervisor in charge of the USAF broad scope license program administered by the Executive Secretary of the USAF Radioisotope Committee at Brooks AFB, San Antonio, Texas. According to EVERETT, the USAF broad scope license took effect in the summer months of 1986 following an extensive multi-year process through which the consolidated license was developed. (EVERETT was Charles "Chuck" CAIN's supervisor. CAIN was the NRC:RIV Radiation Specialist directly responsible for monitoring the USAF's broad scope license.)

During the course of the development of the USAF broad scope license, EVERETT was in attendance at various meetings wherein discussions touched on 10 CFR 20.403 and 20.405 (Notifications of Incidents and Reports of Overexposure). 10 CFR 20.403 and 20.405, according to EVERETT, have "been on the books a long, long time." Their interpretation may, however, vary among individuals, according to EVERETT. To his knowledge, he (EVERETT) is unaware of any supplement or revision which would amplify or further interpret those sections. EVERETT stated that during the USAF/NRC meetings he attended in preparation for administering the broad scope license (which included meetings between USAF officials and NMSS officials in Washington, DC), "we didn't get down to the level of what was what, only that the USAF should adhere to 10 CFR 20.403/405." EVERETT further stated that the USAF people were highly qualified people and one tends not to get into the "nitty-gritty" with them.

EVERETT stated that he recalled discussions with Lt. Col. John BURR (former Executive Secretary of the USAF Radioisotope Committee prior to Lt. Col. David WOOD (now Col. WOOD) who assumed that office as of October 1, 1986) wherein BURR affirmed the USAF's intent to fully comply with reporting requirements. EVERETT stated that the notification required by 10 CFR 20.403/405 could be initiated by telephone, followed by a written notification and a 30 day written report. The reporting time frame, i.e., immediate and 24 hour, however, was "non-negotiable."

According to EVERETT, the USAF personnel have, in the past, demonstrated their high level of competency in the handling of radioactive material and have always reported problems to NRC:RIV to the point of over reporting. Incomplete reporting was never an issue in the past, and when the USAF submitted a report, it was complete and factual. EVERETT did state that to his knowledge, the USAF had not, previous to the Am-241 incident at WPAFB, made any notification required by 10 CFR 20.403.

EVERETT stated that on September 26, 1986, he returned a call to Brooks AFB, San Antonio, Texas, and spoke with Maj. DUNLAP (now Lt. Col. DUNLAP). DUNLAP informed EVERETT of a "minor, localized spill of low level material at a remote location" within WPAFB, Dayton, Ohio. EVERETT asked DUNLAP if there were competent personnel available to clean up the spill, and DUNLAP replied yes. DUNLAP was asked by EVERETT how much material was involved and to identify the isotope. DUNLAP advised EVERETT he (DUNLAP) would get back with EVERETT with more information at a later date. EVERETT believed the incident to be minor and under control. EVERETT was aware that the facility involved (building 4060) was a hazardous waste storage facility. EVERETT could not recall, however, if DUNLAP advised when the spill occurred or if any personnel were contaminated. When EVERETT receives a reportable incident, he normally uses an NRC Record Form to record all facts and specifics. The NRC Record Form in this instance, however, was not used when EVERETT received the above information from DUNLAP. EVERETT opined the information received on September 26, 1986, from DUNLAP was not a reportable incident because none of the criteria of 10 CFR 20.403 was apparently exceeded. The NRC regulation, according to EVERETT, is vague, ambiguous, and leaves room for interpretation. According to EVERETT, had DUNLAP, on September 26, 1986, indicated there was a high alpha release, this would have been "key information," and EVERETT would have asked DUNLAP more probing questions. Based upon further information, which was not provided to EVERETT by DUNLAP at the time, he (EVERETT) may have considered the first spill (September 26, 1986) as significant. If he (EVERETT) determined a spill to be significant, his reaction would have been to call NRC:RIII and request them to look into the problem in order to determine if the spill was reportable under 10 CFR 20.403. EVERETT opined that an alpha reading of 500-1000 counts per minute (CPM) was significantly high. Significant spills are not necessarily reportable, according to EVERETT, but a significant spill would call for additional questions. EVERETT's first concern was health and safety, and this, according to EVERETT, should have also been DUNLAP's concern. EVERETT assumed that all the information DUNLAP passed to him (EVERETT) on September 26, 1986, was complete and accurate. EVERETT regarded the September 26, 1986, call as an informational call. According to EVERETT, "I had developed a trust in the Air Force as to their resources and level of competence, there was no need to quiz them."

On October 10, 1986, EVERETT telephoned WOOD. WOOD, according to EVERETT, told EVERETT that Chem Nuclear (a civilian contractor specializing in nuclear material clean up and disposal) was being called in to assist the USAF at WPAFB. EVERETT said that through his conversation with WOOD, he was left with the impression that Chem Nuclear was to be used for the "disposal" of the already cleaned up nuclear spill. EVERETT stated that he had no idea that Chem Nuclear had arrived at WPAFB on or about September 29, 1986, nor that they (Chem Nuclear) were involved in a major "clean up" effort. EVERETT stated that WOOD advised him of the USAF sending personnel to Mound Laboratory, Dayton, Ohio (prime contractor for the U.S. Department of Energy specializing in nuclear material) to receive a "whole body count" (a method to determine personnel exposure to nuclear material). According to EVERETT, WOOD characterized the reason for sending personnel to Mound Laboratory as precautionary, and that he (WOOD) did not believe anyone was contaminated.

EVERETT said that he asked WOOD if a report was required under 10 CFR 20.403. WOOD, according to EVERETT, characterized the spill as "minor and under control." EVERETT stated that WOOD told him (EVERETT) that he (WOOD) had discussed it (the spill) with others and that the spill was not reportable. EVERETT stated that he recalls having briefly reviewed the reporting requirements, with WOOD arriving at the same conclusion, "it's not reportable."

EVERETT stated that he did not make contemporaneous notes of his conversation with WOOD, however, he did brief CAIN (NRC:RIV Radiation Specialist) of his conversation with WOOD. EVERETT referred to a "Memo for Record," which he and CAIN produced of the information provided by the USAF throughout the September/October 1986 time frame.

EVERETT was questioned as to what constitutes a "release." EVERETT responded that a "release," in his opinion, was "something beyond the licensee's control." EVERETT said that based upon his professional background and experience, the event constituted a "spill," not a "release," therefore invalidating that portion of 10 CFR 20.403 referred to as a "release," and one requirement triggering reportability.

As to "a loss of operation of the building," according to EVERETT, that is "open to interpretation." EVERETT stated that "it's (building 4060) still performing its intended function...it's still a building."

As to "damage to property in excess of $2,000.00," EVERETT stated, "we (he and WOOD) didn't get into that level of detail." However, EVERETT stated that WOOD told him (EVERETT) at a much later date that he (WOOD) did not consider decontamination costs as "damage" to the building. EVERETT stated, "WOOD's got a point!"

EVERETT stated, in response to direct questions, that he feels the first spill (September 18, 1986) was marginal whether or not it required reporting under 10 CFR 20.403 and that it was "open to interpretation." As to the October 6, 1986, spill, EVERETT said he feels that it was reportable, due to the concentrations of Am-241. EVERETT did state that 10 CFR 20.403/405 was open to interpretation, however, and that the NRC had not communicated to the USAF a full interpretation of how the regulations were to be implemented.

EVERETT stated that at a later date WOOD assured him the USAF would be more candid in the future.

Harold G. Walker
Senior Investigator
Office of Investigations
Field Office, Region III

David C. Lannak, Special Agent
Office of Special Investigations
U.S. Air Force

REPORT OF INTERVIEW
WITH
CHARLES L. CAIN

On December 18, 1987, at approximately 1:56 p.m., Charles L. CAIN, NRC Region IV (RIV) Radiation Specialist, was interviewed at the NRC:RIV Office, 611 Ryan Plaza, Arlington, Texas, by: Christopher BARNES, Assistant U.S. Attorney, Southern Judicial District of Ohio; David C. LANNAK, Special Agent, U.S. Air Force (USAF) Office of Special Investigations; and Harold G. Walker, Senior Investigator, NRC Office of Investigations (OI) Field Office, Region III (RIII).

CAIN provided the following background information regarding his experience and education: he earned a Bachelor of Science Degree in Electrical Engineering; was employed with General Electric, Pleasant, California, for one year as a Radiology Safety Officer; and has seven years experience working with the NRC. During 1978, he began working with the NRC:RIV Health and Safety Inspection Section and was later qualified as a Health Physicist.

CAIN, as the person directly responsible to monitor the USAF broad scope license, was being questioned regarding his recollection of conversations between members of the USAF Radioisotope Committee located at Brooks Air Force Base (AFB), San Antonio, Texas, and himself during the time frame September 26 through October 1986. CAIN, on January 22, 1987, was interviewed under oath by NRC:OI Investigator Walker (Ref: OI Case No. 3-86-012). The questions were directly related to the Americium-241 (Am-241) spills at Wright-Patterson Air Force Base (WPAFB), Dayton, Ohio, which occurred on September 18 and October 6, 1986.

CAIN provided a copy of the USAF Materials License dated August 27, 1985, signed by Vandy L. MILLER (attached). (Item 12 of said license states that Air Force regulations, policies, and directives must be consistent with the NRC's regulations.)

According to CAIN, NRC:RIV, Arlington, Texas, was the responsible NRC party to whom the USAF Radioisotope Committee was required to report any occurrences required under 10 CFR 20.403 and 405. This responsibility of NRC:RIV was the result of a two year process in which the USAF and the NRC cooperated in a process to develop a consolidated USAF broad scope license.

CAIN advised all present, prior to questioning, that his recall is based entirely on his memorandum of November 3, 1986, and that he has no additional recall. CAIN further stated that he has no telephone log nor contemporaneous notes with which to refresh his memory.

CAIN began by stating that on Friday, September 26, 1986 (the day that Lt. Col. BURR, then Executive Secretary of the USAF Radioisotope Committee, Brooks AFB, San Antonio, Texas, received a telephone message from Lt. Col. SWANSON reporting a "high level alpha release," etc.), he was off duty due to his compressed work schedule.

CAIN stated that on Monday, September 29, 1986, Jerry EVERETT (the NRC:RIV person to whom Lt. Col. DUNLAP, Radioisotope Committee member, Brooks AFB, San Antonio, Texas, reported the spill as "minor" on September 26, 1986) was not at the NRC:RIV office. CAIN, upon questioning, stated that EVERETT may have left a note regarding the September 26, 1986, contact between he (EVERETT) and DUNLAP, but that he (CAIN) did not have the note.

CAIN was waiting for further information from the USAF regarding the spill as he had become accustomed. CAIN, as the duly appointed NRC contact point with the USAF Radioisotope Committee, was accustomed to receiving telephone calls from BURR, DUNLAP, and Capt. (now Maj.) DONOVAN on a daily basis. The members of the Radioisotope Committee had, according to CAIN, always appeared very conscientious in reporting the most minor event. According to CAIN, "had a major event occurred, the Air Force would have called," the USAF kept him (CAIN) abreast of everything.

CAIN stated that prior to talking to Lt. Col. WOOD on October 3, 1986, he (CAIN) was briefed by EVERETT that WPAFB had a localized contamination spill within a storage building. CAIN, however, was unaware of any serious personnel contamination at WPAFB. CAIN stated that on October 3, 1986, he called WOOD (formerly with the USAF Inspector General's Office and as of October 1, 1986, assumed the duties of Executive Secretary of the USAF Radioisotope Committee, held prior to October 1, 1986, by BURR). WOOD was known to CAIN in WOOD's former capacity as a member of the USAF Inspector General inspection team.

CAIN stated, regarding specifics of the October 3, 1986, telephone conversation with WOOD, that he (CAIN) could add nothing to his November 3, 1986, memorandum (attached). CAIN did state, however, that there were "no specifics" provided by WOOD concerning levels of contamination, and that he (CAIN) could not recall having pursued any line of questioning of WOOD regarding levels of contamination resulting from the spill. CAIN stated that it was his belief that the USAF (WOOD) was telling him (CAIN) all that they (USAF) knew. CAIN stated that he believed he was being told all that was known by WOOD, due to the way they (the USAF Radioisotope Committee when BURR was Executive Secretary) had communicated in the past, previous to the WPAFB spill and since that spill.

CAIN, however, did observe the following, "this was such a major event, it appeared they (USAF) wanted to hold back and keep this (the WPAFB spill) close to the vest. They were, and are very open when dealing with insignificant events. WOOD was not a new character to me, I knew Dave. I was left with the impression that WOOD would have been candid with me as had BURR, DONOVAN, and DUNLAP."

Since the broad scope license was issued to the USAF, according to CAIN, only one incident of a spill occurred prior to September 18, 1986, and that incident was not deemed reportable. CAIN stated emphatically that the USAF's excellent performance was a major consideration in the issuance of the broad scope license. CAIN did not regard the USAF as a typical licensee. He described the USAF as an "ally," treated as co-equals, as if they were an "agreement state."

JAN.14 '88 11:48 AFIT/ED WPAFB AFB OH P.02

CAIN itemized the reporting requirements as follows, regarding the reportability of the October 6, 1986, spill:

1. "There was no excessive rems."

2. "There was no release."

3. "There was no loss of operation."

4. "There was no property damage prior to the building (4050) being torn down in the Fall of 1987."

According to CAIN, the regulations are not definite. 10 CFR 20.403(b)(2) was threatened, and 10 CFR 20.403(b)(3) was open to interpretation. CAIN speculated that building 4060 was an old tin building whose worth was very little, and was used only as storage. CAIN speculated that as long as radioactive waste was being stored, there was no loss of operation.

CAIN was asked about the figure of 1,000,000 counts per minute (CPM) contamination arrived at by the NRC as a result of the second spill. CAIN was asked if this did not constitute a "threat to cause" as written in 10 CFR 20.403(a) or (b). CAIN stated that 20.403(b)(2) was threatened, but that it was open to interpretation whether or not it was reportable. CAIN stated in defense of the USAF, "it is not unreasonable that they (USAF) would have arrived at the conclusion that this (second spill) was not reportable." CAIN further stated, "1,000,000 CPM may not be reportable, it could be characterized as minor."

CAIN was asked to further assess the reportability of the September 18 and October 6, 1986, Am-241 spills as related to 10 CFR 20.403 and 20.405.

According to CAIN, the first spill (September 18, 1986) was "open to interpretation" and "not reportable." CAIN stated, "in my own mind, they (USAF) were not negligent in waiting to report." CAIN stated that it was reasonable to characterize the first spill as "minor," and that he (CAIN) did not expect a large amount of unsealed Am-241 because WPAFB was not licensed to possess a large quantity of Am-241. CAIN stated that on October 3, 1986, WOOD characterized the incident as minor and that he (CAIN) considered it a "controlled event." CAIN stated that he placed his reliance upon the USAF. The use of the word "minor," according to CAIN, would depend on one's background and experience. CAIN said that the USAF people were accustomed to responding to nuclear weapon grade spills, and the Am-241 spill, by comparison, would appear to be minor. CAIN stated that he did not ask a lot of probing questions of WOOD, because he (CAIN) thought that he (WOOD) was telling him (CAIN) everything he (WOOD) knew.

Regarding the second spill (October 6, 1986), CAIN stated, "yes, the agency (NRC) should have been told when they (USAF) knew they had widespread contamination." CAIN opined that having an amount of material (Am-241) in excess of one's license is not in and of itself reportable. However, such a situation would technically be a license violation. According to CAIN, it is open to interpretation whether they (USAF) were legally required under 10 CFR 20.403 and 405 to report anything to the NRC.

JAN.14 '88 11:41 AFIT/ED WPAT AFB OH P.03

CAIN stated that all of 10 CFR 20.403 is open to interpretation, and if he were placed on the stand, under oath, would respond in that manner. CAIN stated that he has registered his personal views with the NRC that 10 CFR 20.403 is ambiguous and open to interpretation.

CAIN was asked if he had seen the Jack WHITTEN memorandum of October 16, 1986, which characterized the WPAFB event as "growing by leaps and bounds," and that the amount of Am-241 contamination discovered was more than any authorized by NRC license. CAIN said he had not seen the October 16, 1986, memorandum prior to his contact with WOOD, but that the phrase "growing by leaps and bounds" was open to interpretation.

CAIN was asked if he would have questioned WOOD in greater detail had he been aware of the contents of the WHITTEN memorandum. CAIN stated that regardless of the contents of WHITTEN's memorandum, he (CAIN) would have had to depend on WOOD's observation and statement that the reportability requirements had not been triggered. CAIN asked, "what else could I do?"

The interview concluded at approximately 4:30 p.m.

Harold G. Walker

Harold G. Walker
Senior Investigator
Office of Investigations
Field Office, Region III

David C. Lannak

David C. Lannak, Special Agent
Office of Special Investigations
U.S. Air Force

Attachments: As stated

NOV 3 1986

U.S. NRC

'87 MAR -6 A11:31

License: 42-23539-01AF
Docket: 030-28641

MEMORANDUM FOR: File

FROM: C. L. Cain, Radiation Specialist

SUBJECT: SUMMARY OF REPORTS FROM AIR FORCE REGARDING AM-241 CONTAMINATION INCIDENT AT WRIGHT PATTERSON AFB

September 26, 1986

Maj. Jim Dunlap telephoned Jerry Everett and stated that leakage had been detected on some low level waste drums and was suspected to be minor. The licensee stated that the incident was under review and more details would be forthcoming.

October 3, 1986

Chuck Cain called Lt. Col. Wood and asked for an update. The licensee stated that full information was still not received from Wright Patterson and that the incident was still characterized as minor. The incident was described in terms of Am-241 contamination from several barrels of waste covering only a small area in the vicinity of the drums. Health physics personnel affiliated with OEHL at Brooks AFB had been dispatched to the site.

October 6, 1986

Maj. Dunlap telephoned Jerry Everett and continued to characterize the incident as minor. Adequate health physics expertise was reported to be at the scene.

October 10, 1986

Lt. Col. Wood telephoned Jerry Everett and stated that Chem Nuclear personnel were being called in for assistance. Jerry reminded the licensee to review § 20.403. Col. Wood stated that he had and he did not believe the incident qualified.

October 16, 1986

Jack Whitten telephoned Brooks AFB and talked to Capt Donovan. Donovan stated that he had contacted Bill Adam at the Region III office on October 15 to get a list of NRC licensees in the proximity of Wright Patterson who were authorized for curie quantities of Am-241. He stated that he had summarized the incident to Adam. The licensee was concerned because the amount of material involved in the incident appeared to be in excess of the permittee's possession limit and would presumably come from a source outside Wright Patterson.

RIV:NMSS&C C:NMSS
CLCain:cd RJEverett
10/31/86 10 11/1/86

3-86-012

ATTACHMENT 3
EXHIBIT 35
PAGE 1 OF 3 PAGE(S)

October 17, 1986

Chuck Cain telephoned Brooks AFB, talked to Capt. Donovan and Lt. Col. Wood, and was told that it was not clear whether the permittee's possession limit for americium had been violated. The incident was still characterized as minor with plenty of health physics expertise on the scene including a certified health physicist. The incident involved 5 or 6 drums of waste, all but one of which had been opened under controlled conditions. Contamination spread was minimal. Cleanup was underway and would soon be complete.

October 23, 1986

At approximately 3:00 p.m., Messrs. Axelson and Wiedeman telephoned Chuck Cain and expressed alarm concerning the incident. They stated that contamination is reportedly widespread and may involve waste from J. C. Haynes.

Cain called Brooks AFB and again spoke with Lt. Col. Wood. Wood still understood the incident to be minor. He stated that the waste probably belonged to the Air Force but some question remained. The four Air Force personnel present when the first drum was opened had undergone lung counting at Mound Laboratories and the results were negative. Chem Nuclear was present during the opening of subsequent drums. Wood stated that he was not sure when the event occurred but it was likely during the last week of September.

October 27, 1986

Chuck Cain attempted to talk to Lt. Col. Wood at Brooks AFB. He was told that Wood had traveled to Wright Patterson the previous day (Sunday) and could be reached at (513) 255-4834, which is the office of Lt. Col. Garner Moody. Maj. Dunlap stated that the increased seriousness of the incident was communicated to Wood from an unknown source during the weekend.

ORIGINAL SIGNED BY:

C. L. Cain

bcc:
RDMartin
RLBangart
WLFisher
RJEverett
CLCain
JWhitten
NMSS

3-86-012

EXHIBIT 35
PAGE 2 OF 3 PAGE(S)

NRC FORM 211 — U.S. NUCLEAR REGULATORY COMMISSION — DATE 10/16

TELEPHONE OR VERBAL CONVERSATION RECORD — TIME

☐ INCOMING CALL ☐ OUTGOING CALL ☐ VISIT

PERSON CALLING	OFFICE/ADDRESS	PHONE NUMBER / EXTE

PERSON CALLED	OFFICE/ADDRESS	PHONE NUMBER / EXTE
Captain Donovan	Brooks Air Force Base	

CONVERSATION

SUBJECT: Americium-241 contamination incident telephone conversation

SUMMARY

On the morning of October 16, 1986, I was requested by Jerry to return a telephone call to Captain Donovan of the Air Force. After several unsucessfull attempts to contact Captain Donovan, I finally reached him before noon. We discussed the Wright Patterson americium-241 contamination incident. In his conversation he indicated that he had contacted Region III the day before (10/15) to get a list of any NRC licensees located in close proximity of Wright Patterson AFB authorized for curie quantities of americium-241. At this time he relayed to me that the contamination incident was growing by leaps-and-bounds and that the amount of contamination already discovered would be above any authorization for americium authorized by NRC's old license to Wright Patterson or the Air Force Broad License permit to same. He indicated that he thought that this material had somehow gotten on the Air Force property without consent or the Air Forces knowledge, and the Air Force planned to get to the bottom of this little mystery.

After talking with Captain Donovan, I was then able to relay this information to Jerry. Jerry then briefed me in the ongoing problem and instructed me to get back in touch with Captain Donovan and get a complete update. I tried the rest of the afternoon to get back in touch with Captain Donovan, but was not able to do so. I told Jerry that I could not reach the Air Force. The next day I was off on CWS.

REFERRED TO: ☐ ADVISE ME OF ACTION TAKEN.

ACTION REQUESTED — INITIALS — DATE

ACTION TAKEN — INITIALS — DATE

NRC FORM 211 (6-76)

JOHN GLENN, OHIO, CHAIRMAN

LAWTON CHILES, FLORIDA
SAM NUNN, GEORGIA
CARL LEVIN, MICHIGAN
JIM SASSER, TENNESSEE
DAVID PRYOR, ARKANSAS
GEORGE J. MITCHELL, MAINE
JEFF BINGAMAN, NEW MEXICO

WILLIAM V. ROTH, JR., DELAWARE
TED STEVENS, ALASKA
WILLIAM S. COHEN, MAINE
WARREN B. RUDMAN, NEW HAMPSHIRE
JOHN HEINZ, PENNSYLVANIA
PAUL S. TRIBLE, JR., VIRGINIA

LEONARD WEISS, STAFF DIRECTOR
JO ANNE GARHART, MINORITY STAFF DIRECTOR

United States Senate
COMMITTEE ON
GOVERNMENTAL AFFAIRS
WASHINGTON, DC 20510-6250

February 16, 1988

Colonel Stephen Kollar
Base Commander
Wright-Patterson Air Force Base
Dayton, Ohio 45433

Dear Colonel Kollar:

I am writing in support of an appeal by SMSgt. Wendell I. Wingo to remove from his personnel records the most recent Annual Performance Review (APR), covering the period 19 Sep 1986 through 31 Aug 1987. While I generally refrain from involvement in internal agency personnel decisions, the facts and circumstances in this particular case warrant my personal concern.

Last November, in conjunction with Senator Metzenbaum, I chaired a hearing to investigate two leaks of Americium-241 at Wright-Patterson Air Force Base in the fall of 1986. These radioactive incidents were caused by members of the Bioenvironmental Engineering Group (BEE), the Base unit responsible for ensuring environmental health and safety. At a staff meeting (19 Sep 1986) chaired by BEE Director Lt. Col. Maynard G. Moody one day after the first Americium leak, Lt. Col. Moody and certain other individuals decided to withhold from proper authorities vital information on the extent of contamination. In addition, they devised a plan to dispose of the Americium-241 by mislabelling it and shipping it to a commercial radwaste facility in violation of Air Force, Nuclear Regulatory Commission, and Department of Transportation regulations.

The reason that a record of this deplorable conduct on the part of Lt. Col. Moody and certain other BEE members exists is due to Sergeant Wingo. Part of his responsibilities as Superintendent of the BEE unit at that time was to tape record such staff meetings. In this particular case, Lt. Col. Moody ordered the tape recording, which contained the direct evidence of the proposed cover up, to be destroyed. However, Sergeant Wingo, understanding the implications and significance of this recording, retained the tape in his desk. The tape recording and transcripts are presently being examined by the Justice Department and the

Air Force Office of Special Investigations, both of which are currently conducting their own probes into this matter.

Given this background, I think it important to note that the performance evaluation in question (31 Aug 1987) was written by Sergeant Wingo's supervisor, Lt. Col. Moody -- the very officer who had hatched the coverup and then ordered Sergeant Wingo to erase the incriminating tape. Additionally, one cannot help but notice the period covered in this review: from 19 Sep 1986, the date of the taped staff meeting, through 31 Aug 1987, Lt. Col. Moody's final day on the base before his early retirement became effective.

Without this context, it might be reasonable to accept at face value the words Lt. Col. Moody used to justify Sergeant Wingo's APR rating of "6". However, in my judgment, no objective person, familiar with these events, could conclude anything but that Lt. Col. Moody had a vindictive and retaliatory motive in mind. Phrases like the one that Sergeant Wingo "needs to actively promote harmony among fellow workers" and "needs to heal past wounds with his co-workers and make a fresh start" are clear references to and in retribution for Sergeant Wingo's actions regarding the tape.

I have examined Sergeant Wingo's previous APR ratings. Between 16 May 1976 and 18 Sep 1986, out of a total of 13 reviews conducted, Sergeant Wingo scored the highest possible mark ("9") on 12 evaluations. The sole exception was an "8" rating on the APR dated 31 Jul 1979. These superior ratings contrast sharply with the middling "6" rating on the review in question.

Let me cite some comments rendered by Major Wiley Taylor, Lt. Col. Moody's immediate predecessor, on Sergeant Wingo's performance. I think it is important to note that Major Taylor's final performance review of Sergeant Wingo coincided with the arrival of Lt. Col. Moody as the new Director of the BEE unit, and coincidentally, the week in which the first Americium spill occurred. Major Taylor consistently stated that Sergeant Wingo is an "inspiration for others as he daily promotes advancement and treatment for all based on their abilities". (See reviews dated 20 Dec 84, 20 Dec 85, 18 Sept 86). Major Taylor also noted that Sergeant Wingo is: "an organized and talented manager and is respected and well-like by everyone" (20 Dec 84); "a manager who gets things done" (20 Dec 85); and is "experienced, talented and an extremely successful manager" who "can always be counted on to get the job done" (18 Sep 86). Indeed, all of Major Taylor's comments conclude with the recommendation that Sergeant Wingo should be promoted to Chief Master Sergeant "now".

In addition, Sergeant Wingo has merited other Indorsers' favorable comments as well. For example, on the 20 Dec 84 APR, Major General William P. Bowden mentioned that Sergeant Wingo "is one of this Command's 'super' troops", "a leader

[who] in spite of adversities [has] improved productivity within his Department." The 2nd Indorser on that review, Col. Lawrence R. Smith, remarked that Sergeant Wingo is "ready now to manage any Bioenvironmental Engineering Department in the Air Force." In the APR of 18 Sept 1986, Brigadier General William L. Meader (2nd Indorser) said "SMSgt Wingo's ability to get the job done in spite of the obstacles speaks for itself", and "his support for the Wing Commander on the various environmental issues is noteworthy." And the 1st Indorser on the APR's dated 20 Dec 1985 and 18 Sep 1986, Colonel Frederick R. Bode, Commander of the Medical Center, stated that Sergeant Wingo "is a leader who accepts responsibility", has "proven his ability and is deserving of yet more responsibility" (20 Dec 85). In the 18 Sep 1986 review, Col. Bode commented that Sergeant Wingo "is a doer; he gets results." I hasten to add that all of the Indorsers' evaluations for this period recommended Sergeant Wingo for promotion to Chief Master Sergeant.

While on this subject, I should note that Col. Bode did sign the APR review in question (31 Aug 87) as 1st Indorser and concurred in the overall "6" rating. This, despite Col. Bode's comments that "SMSgt Wingo has excellent talents and abilities", and "can provide the leadership needed...to achieve outstanding results in protecting workers' health at this base." (31 Aug 87) What had prompted Col. Bode during the previous year to agree to lower Sergeant Wingo's mark from a "9" to a "6"? While I do not know the answer, I note that as Commander of the Medical Center, Col. Bode was ultimately responsible for the performance of the BEE at the time of the Americium spills and the attempted coverup.

I have tried to be as precise as I can in explaining why the APR in question is tainted and should be expunged from Sergeant Wingo's files. In addition, I note that the Air Force Guidelines for Correction of Evaluation Reports suggest that great weight is given to letters of support obtained by an appellant from either officers who signed the APR or other officials who had positions enabling them to observe directly the appellant's performance during the period of review in question.

In this case, it goes without saying that Sergeant Wingo will be unable to procure letters of support from the officers who signed the APR. Moreover, Sergeant Wingo will probably not have any letters of support from other officers or officials in his unit. The simple reason is that the persons in supervisory positions in the BEE unit since Lt. Col. Moody's departure in August 1987, namely Mr. Victor Dunn, 1st Lt. Douglas A. Post, and 1st Lt. Oba Vincent actually participated in the recorded staff meeting in which the cover-up was discussed. Therefore, it would appear reasonable in this instance to assign no weight to the fact that Sergeant Wingo's appeal may enclose no supporting letters from officers or officials in his chain of command or unit.

Finally, I note that Sergeant Wingo has requested to be relieved of active duty effective 30 June 1988. I have been informed that with the utilization of leave time accumulated, Sergeant Wingo can stop reporting to duty as early as 1 May 1988.

I understand that this retirement decision is at least in part motivated by the "6" APR rating, which certainly bars any chance of Sergeant Wingo's promotion to Chief Master Sergeant. I further understand that Sergeant Wingo has indicated to my staff that if his appeal proves successful, he would consider remaining on active duty. Therefore, I would urge you to make whatever arrangements are necessary to give Sergeant Wingo the option to rescind his retirement orders should the appellate board make a decision before 1 May 1988, or in the alternative, to put Sergeant Wingo's retirement in abeyance should a decision not be made before 1 May 1988 and provide the option for Sergeant Wingo to rescind his retirement orders whenever such decision is made. These special arrangements appear warranted in this case.

I wish to stress once again that I usually refrain from involvement in these matters and defer to the judgment and discretion of proper personnel authorities. But in this instance, I feel compelled to write in support of Sergeant Wingo's appeal because he did what was right and virtuous. His actions should be acknowledged and commended, not punished. Had some of his superior officers been guided by the same principles, this incident would never have gotten out of hand, causing Wright-Patterson and the entire Air Force such adverse publicity.

I would appreciate your expeditious handling of this matter, and I would like to be kept informed on this specific case. Please do not hesitate to contact me or my staff members (Brian Dettelbach or Lorraine Lewis, 202-224-4751) if you need any additional information.

Best regards,

Sincerely,

John Glenn

John Glenn
Chairman

(CERTIFIED TRUE COPY) Willis Jackson Jr. - WILLIS JACKSON JR., TSGT, USAF, NCOIC RECORDS UNIT 2750ABW/DPMAR 8 JAN 83

I. RATEE IDENTIFICATION DATA *(Read AFR 39-62 carefully before completing any item)*

1. NAME (Last, First, Middle Initial)	2. SSAN	3. GRADE	4. DAFSC
WINGO, WENDELL I.	FR293-40-8935	SMSGT	90790

5. ORGANIZATION, COMMAND, AND LOCATION	6. PAS CODE
USAF MEDICAL CENTER W-P (AFLC) WRIGHT-PATTERSON AFB, OHIO	WEOFFGM2

7. PERIOD OF REPORT	8. NO. OF DAYS OF SUPERVISION	9. REASON FOR REPORT
FROM: 19 Sep 1986 THRU: 31 Aug 1987	347	CRO

II. JOB DESCRIPTION 1. DUTY TITLE: SUPERINTENDENT, BIOENVIRONMENTAL ENGINEERING

2. KEY DUTIES, TASKS, AND RESPONSIBILITIES: Manages the Directorate's Operations Division with administrative oversight of all correspondence, files, reference library and publications. Controls equipment and supply account of over one hundred thousand dollars, oversees equipment maintenance, repair and calibration. Vehicle control officer, Directorate OJT Administrator, Cost Center Manager, Building Custodian, Program Manager of Automated Hazard Abatement Project, Directorate Self Inspection Program Administrator, Directorate Safety Officer. During the first ten months of the period he supervised the daily activities of the enlisted technicians.

III. EVALUATION OF PERFORMANCE

		N/O	BR	BM	0	1	2	3	4	5	6	7	8	9
1. PERFORMANCE OF DUTY: Consider the quantity, quality, and timeliness of duties performed as described in Section II.	RATER										X			
	1ST INDORSER										X			
2. HUMAN RELATIONS: Consider how well ratee supports and promotes equal opportunity, shows concern and is sensitive to needs of others.	RATER											X		
	1ST INDORSER											X		
3. TRAINING: Consider how well responsibilities are discharged as an OJT supervisor or trainer and in other efforts to improve technical knowledge and educational level.	RATER											X		
	1ST INDORSER											X		
4. EXECUTIVE ABILITY: Consider ratee's judgment, decisiveness, ability to communicate (oral and written), and effectiveness in supervising and leading.	RATER										X			
	1ST INDORSER										X			
5. ACCEPTANCE OF NCO RESPONSIBILITY: Consider ratee's acceptance of responsibility for personal actions and those of subordinates.	RATER									X				
	1ST INDORSER									X				
6. BEARING AND BEHAVIOR: Consider the degree to which ratee's bearing and behavior on and off duty improve the image of Air Force noncommissioned officers.	RATER													X
	1ST INDORSER													X

IV. OVERALL EVALUATION

	0	1	2	3	4	5	6	7	8	9
How does the ratee compare with others of the same grade and Air Force specialty? Potential for promotion and or increased responsibility are essential considerations in this rating.										
RATER							X			
1ST INDORSER							X			
UNIT COMMANDER REVIEW (Initials) SK										
2D INDORSER										
3D INDORSER										

AF FORM JUN 84 911 PREVIOUS EDITION WILL BE USED — CMSGT, SMSGT, MSGT PERFORMANCE REPORT

V. RATER'S COMMENTS FACTS AND SPECIFIC ACHIEVEMENTS: SMSgt Wingo accomplishes specifically assigned tasks rapidly and satisfactorily. He prepares all recurring cost center and resource management reports in a timely fashion. He does not attempt to determine all the nuances and related factors that separate satisfactory work from outstanding work. His management of the enlisted technicians consisted of assigning tasks and assuring timely completion. He did not provide adequate technical review of the technicians work products to insure that appropriate quality was being provided to bioenvironmental engineers and industrial hygienists. He did not actively and aggressively seek to keep technicians gainfully employed. He did not aggressively attack or willingly assist with the problems that surfaced with equipment maintenance and repair, with vehicle control, with AHAPs, and with office personnel inter-relationships. Although offered multiple opportunities to assume and provide the senior leadership essential to successful management of a complex Bioenvironmental Engineering program SMSgt Wingo never stepped up to shoulder his share of the load. RECOMMENDED IMPROVEMENT AREAS: SMSgt Wingo needs to recommit his talents and energies to a search for excellence. He needs to actively promote harmony among fellow workers, military and civilian. He needs to heal past wounds with his co-workers and make a fresh start.

NAME, GRADE, BRANCH OF SERVICE, ORGANIZATION, COMMAND AND LOCATION	DUTY TITLE	DATE
MAYNARD G. MOODY, Lt Col, USAF, BSC USAF Medical Center, W-P (AFLC) Wright-Patterson AFB, Ohio	Director, Bioenvironmental Engineering Services	31 Aug 1987
	SSAN: 002-28-7770FR	SIGNATURE: Maynard G. Moody

VI. 1ST INDORSER'S COMMENTS ☒ CONCUR ☐ NONCONCUR

SMSgt Wingo has excellent talents and abilities. I am confident that he can provide the leadership needed to allow the Bioenvironmental Engineering program at this Medical Center to achieve outstanding results in protecting workers' health at this base.

NAME, GRADE, BRANCH OF SERVICE, ORGANIZATION, COMMAND AND LOCATION	DUTY TITLE	DATE
FREDERICK R. BODE, Colonel, USAF, MC USAF Medical Center W-P (AFLC) Wright-Patterson AFB, Ohio	Commander	14 Sep 87
	SSAN: 285-36-8825FR	SIGNATURE: Frederick R. Bode

VII. 2D INDORSER'S COMMENTS ☐ CONCUR ☐ NONCONCUR

THIS SECTION NOT USED

NAME, GRADE, BRANCH OF SERVICE, ORGANIZATION, COMMAND AND LOCATION	DUTY TITLE	DATE
	SSAN	SIGNATURE

VIII. 3D INDORSER'S COMMENTS ☐ CONCUR ☐ NONCONCUR

THIS SECTION NOT USED

NAME, GRADE, BRANCH OF SERVICE, ORGANIZATION, COMMAND AND LOCATION	DUTY TITLE	DATE
	SSAN	SIGNATURE

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 2750TH AIR BASE WING (AFLC)
WRIGHT-PATTERSON AIR FORCE BASE, OHIO 45433-5000

29 JUN 1988

REPLY TO ATTN OF: CC

SUBJECT: Removal of Airman Performance Report - SMSgt Wendell I. Wingo, 293-40-8935

TO: DP

1. I have recently become aware that an Airman Performance Report written on SMSgt Wingo may have been rendered with the intent to retaliate against him for his cooperation with base and congressional investigators. This recent and highly publicized investigation dealt with alleged improprieties by base employees accepting and storing unauthorized radioactive waste material and then attempting to cover-up an incident involving a spill of these materials. The testimony and assistance of SMSgt Wingo were valuable in the investigation of those responsible for accepting the material as well as those possibly involved in an attempted cover-up. Unfortunately, much of the information provided by SMSgt Wingo reflected unfavorably on the actions of his reporting official. As base commander, I am aware of the circumstances and personalities involved in this matter and I believe that the subject report was not rendered fairly as defined by AFR 39-62, paragraph 3-1a(6) and has unjustly jeopardized his career.

2. Request you take immediate action IAW AFR 31-11, paragraph 4b(2) to void the subject report and remove it from SMSgt Wingo's record as quickly as possible.

STEPHEN F. KOLLAR
Colonel, USAF
Commander

ATCH 1
PTS

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE MILITARY PERSONNEL CENTER
RANDOLPH AIR FORCE BASE TX 78150-6001

REPLY TO ATTN OF: DPMAJA2 17 Feb 88

SUBJECT: AFR 31-11 Appeal Decision: SMSgt Wendell I. Wingo, 293-40-8935, AFR c/o 31 Aug 87

TO: 2750 ABW/DPMQE
Wright-Patterson AFB OH 45433-5000

The Airman Personnel Records Review Board approved the AFR 31-11 appeal request on the above named individual. Please destroy the 31 Aug 87 report, and any attachments, and insert the attached AF Form 77 in its place. PDS has been updated and, if the member is a senior NCO, the selection folder has been corrected. Also, please inform the member in writing of the Board's decision.

FOR THE COMMANDER

RONALD W. BADOUR, CMSgt, USAF
Chief, Evaluation Appeals Section
Dir of Pers Prgm Mgt

1 Atch
AF Form 77 c/o 31 Aug 87

DEPARTMENT OF THE AIR FORCE
USAF MEDICAL CENTER, WRIGHT-PATTERSON (AFLC)
WRIGHT-PATTERSON Air Force Base, OHIO 45433-5300

REPLY TO
ATTN OF: SGB 26 February 1988

SUBJECT: Reassignment of Personnel

TO: SMSgt Wendell I. Wingo, USAF, SSAN 293-40-8935

1. Effective 0730 hours, 26 February 1988, you are hereby relieved of all duties in the Bioenvironmental Engineering Directorate and assigned to duties with the Commander, USAF Medical Center Wright-Patterson.

2. You will take the following actions:

a. Clear all items from your office by 1500 hours, 26 February 1988.

b. Turn in all keys to Building 40, Wright-Patterson AFB, OH, to the alternate building custodian.

c. Arrange for the expeditious transfer of all custodial accounts for which you are responsible to personnel which I shall designate.

d. Report in Class A uniform at 0730 hours, Monday, 29 February 1988, to the Commander, USAF Medical Center Wright-Patterson.

DAVID A. NUSS, Colonel, USAF, BSC
Director, Bioenvironmental Engineering Services

cc: Med Ctr/SG
Med Ctr/SGA
Med Ctr/SGQ

1st Ind, SMSgt Wendell I. Wingo, USAF, SSAN 293-40-8935 26 Feb 1988

TO: SGB
SG
IN TURN

1. I hereby acknowledge receipt of this letter.

WENDELL I. WINGO, SMSgt, USAF
SSAN 293-40-8935